



DEPARTMENT OF VETERANS AFFAIRS
Washington DC 20420

May 20, 2019

18-cv-02463

Daniel A. McGrath
American Oversight
1030 15th Street NW, B255
Washington, D.C. 20005

Dear Mr. McGrath:

The Office of Electronic Health Record Modernization (OEHRM) responded to your request for Genevieve Morris' records in an Initial Agency Decision (IAD) dated April 25, 2019. This letter is OEHRM's second IAD in response to your two requests dated May 4, 2018 and submitted to the Department of Veterans Affairs (VA) under the Freedom of Information Act (FOIA), 5 U.S.C. § 552. This IAD is also in response to your request for the records of Dr. Laura Kroupa, OEHRM Chief Medical Officer (CMO), a supplemental custodian added to the search per your request in March 2019.

You requested the following search terms:

Search One

Records containing the terms

- a. Isaac
- b. or Ike
- c. or Jared Kushner

Search Two

Records containing the terms

- d. Moskowitz
- e. Perlmutter
- f. Ike
- g. Trump's friend
- h. Trump's doctor
- i. POTUS friend
- j. POTUS's friend
- k. POTUS' friend
- l. POTUS doctor
- m. POTUS's doctor
- n. POTUS' doctor
- o. President's friend
- p. Friend of POTUS
- q. Friend of President
- r. Friend of the President

Please note that the Office of the Secretary (OSVA), the Veterans Health Administration (VHA), and the Office of Information and Technology (OIT) will respond separately.

IAD for Dr. Laura Kroupa

The assigned performed a search of Dr. Kroupa's email server using the provided terms. The search produced 1,135 documents. From the 1,135 documents, 16 records are responsive. The first 15 documents are released with redactions in accordance with 5 U.S.C. § 552(b)(6). One additional document totaling 1,474 pages, remains in process at this time.

5 U.S.C. § 552(b)(6) exempts from required disclosure "personnel and medical files and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy." "Withholding a telephone number or e-mail address, alone, is not sufficient to protect that [privacy] interest; alternate means of contacting and harassing these employees would be readily discoverable on the Internet if this court ordered their names disclosed." *Long v. Immigration & Customs Enf't*, 2017 U.S. Dist. LEXIS 160719 (D.C. Cir. 2017). Information withheld consists of the names of GS-15 and below VA employees, contractors, and private citizens. The redacted information also includes email addresses, contact information, and VA usernames. This information reveals nothing about how the agency performs its statutory duties.

The coverage of FOIA Exemption 6 is absolute unless the FOIA requester can demonstrate a countervailing public interest in the requested information by demonstrating that the individual is able to provide the requested information to members of the public and that the information requested contributes significantly to the public's understanding of the activities of the Federal government. Also, the requester must demonstrate how the public's need to understand the information significantly outweighs the privacy interest of the person to whom the information pertains. Upon consideration of the records, there is not an identifiable countervailing public interest of sufficient magnitude to outweigh the privacy interest of the individuals whose names are redacted. The protected information has been redacted and (b)(6) inserted.

FOIA Mediation

As part of the 2007 FOIA amendments, the Office of Government Information Services (OGIS) was created to offer mediation services to resolve disputes between FOIA requesters and Federal agencies as a non-exclusive alternative to litigation. Using OGIS services does not affect your right to pursue litigation. Under the provisions of the FOIA Improvement Act of 2016, the following contact information is provided to assist FOIA requesters in resolving disputes:

VA Central Office FOIA Public Liaison:

Name: John Buck

Email Address: vacofoiaservice@va.gov

Office of Government Information Services (OGIS)

Email Address: ogis@nara.gov

Fax: 202-741-5769

Mailing address:

National Archives and Records Administration

8601 Adelphi Road

College Park, MD 20740-6001

FOIA Appeal

Please be advised that should you desire to do so, you may appeal the determination made in this response to:

Office of General Counsel (024)
Department of Veterans Affairs
810 Vermont Avenue, NW
Washington, DC 20420

If you should choose to file an appeal, please include a copy of this letter with your written appeal and clearly indicate the basis for your disagreement with the determination set forth in this response. Please be advised that in accordance with VA's implementing FOIA regulations at 38 C.F.R. § 1.559, your appeal must be postmarked no later than ninety (90) days of the date of this letter.

Thank you for your interest in VA.

Sincerely,

Mingo, Fred J.

Digitally signed by Mingo,
Fred J.
Date: 2019.05.20 14:14:50
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Mr. Fred Mingo, Jr.
OEHRM FOIA Officer

Attachments:

LK_Records_American Oversight_Part 1_Redacted: 78 pages
LK_Records_American Oversight_Part 2_Redacted: 38 pages

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Bcc:
Subject: EHRM in the News and SecVA Stand-Up -- Tuesday, December 11, 2018
Date: Tue Dec 11 2018 10:18:54 EST
Attachments: 181211_VA Secretary's Stand-Up Brief.pptx
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News Summary: Today's news clips include an article about how VA is rolling out APIs to enable health IT developers; the New York Times discusses how democrats and republicans are uniting on one issue: oversight of the VA; Rep. Mark Takano is poised to lead the House Committee on Veterans Affairs; and finally Politico discusses Veterans Affairs ranking member Tim Walz's campaign to expose the influence of three Mar-a-Lago associates on VA business.

EHR Intelligence: VA Rolls Out APIs to Improve Interoperability, EHR Data Access (Dec. 10, 2018, Kate Monica)

*VA is rolling out standards-based application programming interfaces (APIs) designed to enable health IT developers to build tools that improve interoperability, EHR data access, and health data exchange for veterans and their providers.

*The federal agency detailed its plans to engage with developers through APIs on its webpage and offered information about several different API offerings.

*VA's health API offering allows health IT developers to build tools that help veterans manage their health, view their EHRs, schedule appointments, find specialty facilities, and exchange health information with caregivers and providers.

The New York Times: Republicans and Democrats Unite on at Least One Issue: Oversight of the V.A. (Dec. 10, Jennifer Steinhauer)

*Even before the next Congress convenes, Republicans are joining Democrats in a vigorous examination of failings by the Department of Veterans Affairs, a rare area of bipartisan oversight in a blistering political environment.

*The unity was emphasized in recent weeks when lawmakers in the House and Senate from both parties sharply criticized the response of department officials after it was revealed that the agency failed to make housing and tuition payments under the G.I. Bill after its computer systems were unable to keep up with recent changes to that law.

The Press Enterprise: Rep. Mark Takano poised to lead House Committee on Veterans Affairs (Dec. 10, Jeff Horseman)

*Increased VA oversight is among the Horseman's priorities

*Veterans Affairs is one of the biggest departments of the federal government, with a proposed 2019 budget of more than \$196 billion. And the House committee overseeing the department is one of several in Congress with subpoena power.

*Another Takano priority is making sure the VA is prepared to care for the new demographics of 21st century veterans. While the veteran population is projected to decline by more than 6 million by 2037, that population will be more diverse, according to a VA report.

Politico: WALZ PUSHES WILKIE ON MAR-A-LAGO (Dec. 11, 2018, Mohana Ravindranath)

*Veterans Affairs ranking member Tim Walz is continuing his campaign to expose the influence of three Mar-a-Lago associates on VA business, writes Morning eHealth's Arthur Allen.

*In a Monday letter to VA Secretary Robert Wilkie, Walz raises questions about the department's response to a lawsuit brought by VoteVets. The PAC accuses the VA of violating federal advisory committee statutes by enabling the influence of Marvel Entertainment Chairman Ike Perlmutter, internist Bruce Moskowitz and attorney Marc Sherman.

*Department emails released in a FOIA request indicate the VA ceded decision-making power to the three and allowed them to direct technology developments at the VA that could have enriched Moskowitz and his family, Walz wrote.

*Walz, governor-elect of Minnesota, demanded unredacted documents on the relationship and said his colleagues would pursue his investigation next year. The GAO is also investigating the Mar-a-Lago group's influence.

(b) (6) | U.S. Department of Veterans Affairs (contractor) |

Digital Communications | Office of Electronic Health Record Modernization (OEHRM)|

811 Vermont Avenue NW (4th Floor) Washington, DC 20420|

(b) (6) @va.gov

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www.flickr.com/photos/VeteransAffairs | <http://www.youtube.com/user/deptvetaffairs>

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Filename: 181211_VA Secretary's Stand-Up Brief.pptx
Last Modified: Tue Dec 11 09:18:54 CST 2018



VA Secretary's Stand-Up Brief

11 December 2018

Executive Summary

Multiple national storylines emerged yesterday. *Reuters* and *Stars and Stripes* began coverage of a Dartmouth study showing the high quality of care at VA hospitals compared to other area hospitals.

Storyline	Outlets	Analysis	Trend	Priority
VAMCs provide higher quality care than other hospitals	<i>Reuters, Stars and Stripes</i>	<i>Reuters</i> and <i>Stars and Stripes</i> covered a Dartmouth study that found VA facilities often outperform other hospitals when it comes to mortality rates and patient safety. <i>Stars and Stripes</i> quoted lead researcher Dr. William Weeks as saying VAMCs are in many cases the best regional hospitals and are rarely the worst.	Emerged	Service
Accountability on GI Bill delays	<i>NBC News</i>	<i>NBC News</i> published a new story early this morning positing the question of who will be held accountable for the GI Bill delays. The article established a timeline of the confusion around how the payments will be processed. VA messaging was absent from the piece, which was largely based on statements from IAVA's Paul Rieckhoff, as well as Sens. Tammy Duckworth and Cory Gardner.	Emerged	Interests
Senate unlikely to pass Blue Water bill this year	<i>Stars and Stripes, Military Times</i>	<i>Stars and Stripes</i> reported that the Blue Water Veterans bill was blocked from quick passage by Sen. Mike Enzo (R-Wyo.), who said, "VA's analysis shows the costs could be nearly five times what Congress assumed it was when the House of Representatives passed it." The article also noted Sec. Wilkie's opposition to the bill is based on "cost concerns and insufficient scientific evidence." <i>Military Times</i> wrote that the Veterans affected "can't afford more legislative delays," and recounted critical reactions from some VSOs and Senators.	Emerged	Service / Interests
Bipartisan cooperation in VA oversight	<i>New York Times</i>	The <i>New York Times</i> wrote that VA oversight is a "rare area of bipartisan oversight," saying cooperation was emphasized in the last weeks in reactions to GI Bill delays.	Emerged	Interests / Other
Supreme Court to review case involving VA benefits	<i>The Hill, Law.com, Courthouse News Service, Bloomberg Law</i>	These articles covered the Supreme Court's agreement to hear the case of <i>Kisor v. Wilkie</i> , in which Veteran James Kisor is challenging the Department's refusal to award him retroactive benefits based on its regulatory interpretation. According to reporting, the case could have broad implications because it will address how much courts should defer to a federal agency's interpretation of an ambiguous regulation.	Emerged	Interests

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VA Secretary's Stand-Up Brief

11 December 2018

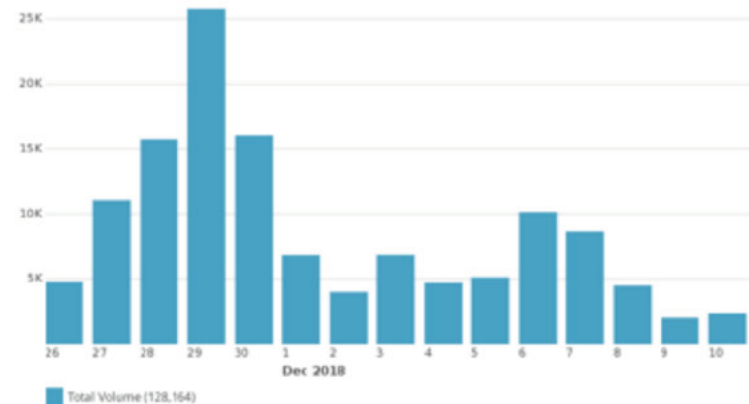
Social Media Takeaway

In stark contrast to traditional media, Twitter was at a standstill yesterday. Only one post received over 10+ retweets.

Key Points

- The slight increase in activity yesterday compared to Monday is from the normal variation in the baseline of posts, observed daily, which receive no or nearly no user engagement.
- The only post with notable engagement yesterday was by Actress @Alyssa_Milano, who wrote that Veterans deserve better than the GI Bill delays. Her post also linked to the related 28 Nov. *NBC News* [article](#) (700+ retweets).
- American Patriot* uploaded to [YouTube](#) a computer-generated reading of a story on the Providence VA nurse who admitted to removing liquid opioids from the hospital (2.9k+ views). This is the fourth most-viewed video of the last 30 days.

Twitter and Facebook Volume: 26 November – 10 December



Notable Social Media Items

Platform	Item	Relevance
Twitter	Topic: GI Bill delays	11% of Volume
Twitter	Topic: The Confederacy / Jefferson Davis	1% of Volume
Facebook	VA Medical Center donates toys to area foster children	310+ Reactions, 20+ Shares

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VA Secretary's Stand-Up Brief

11 December 2018

Reuters: U.S. veterans' hospitals often better than nearby alternatives (10 December, Lisa Rapaport, 16.5M uvm; New York, NY)

U.S. Veterans Administration (VA) hospitals may provide better quality care than other hospitals in many American communities, a U.S. study suggests. Researchers looked at 121 regional health care markets with at least one VA hospital and one non-VA facility. Altogether they assessed 135 VA hospitals and 2,988 non-VA hospitals using Hospital Compare, a public database that ranks hospitals on quality measures like mortality rates for common diseases and preventable complications.

[Hyperlink to Above](#)

Stars and Stripes: Dartmouth study finds VA hospitals outperform others in same regions (10 December, Nikki Wentling, 532k uvm; Washington, DC)

A new study by Dartmouth College that compares Department of Veterans Affairs hospitals with other hospitals in the same regions found VA facilities often outperform others when it comes to mortality rates and patient safety.

[Hyperlink to Above](#)

WCPO (ABC-9, Video): Yoga, equine therapy help Cincinnati veterans find peace (10 December, Craig McKee, 289k uvm; Cincinnati, OH)

Appointments with Veterans Affairs counselors and therapy groups made Jason Short feel "like a test subject," he told WCPO in 2016. Talking through the experiences that led to his diagnosis with post-traumatic stress disorder didn't help him move past them. Training wild horses did.

[Hyperlink to Above](#)

WPLN (NPR-1430, Audio): Nashville VA Attacking Patient Backlog With Dedicated Call Center (10 December, Blake Farmer, 33k uvm; Nashville, TN)

VA hospitals and clinics in Middle Tennessee are trying to attack their patient backlog by more efficiently handling phone calls. The Tennessee Valley Health Care system has established a central call center, which handles as many as 35,000 calls a month. The VA admits that veterans have been spending way too long on hold and navigating phone systems. This shows up in patient satisfaction feedback.

[Hyperlink to Above](#)

EHR Intelligence: VA Rolls Out APIs to Improve Interoperability, EHR Data Access (10 December, Kate Monica, 18k uvm; Danvers, MA)

VA is rolling out standards-based application programming interfaces (APIs) designed to enable health IT developers to build tools that improve interoperability, EHR data access, and health data exchange for veterans and their providers. The federal agency detailed its plans to engage with developers through APIs on its webpage and offered information about several different API offerings.

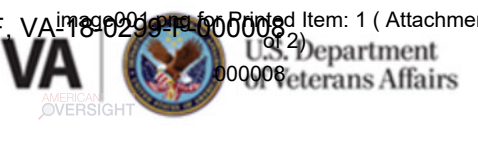
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Subject: EHRM in the News and SecVA Stand-Up -- Monday, December 10, 2018
Date: Mon Dec 10 2018 10:14:46 EST
Attachments: 181210_VA Secretary's Stand-Up Brief.pptx

News Summary: Today's news includes continued coverage of Trump's 'Mar-a-Lago crowd' and its impact on the EHRM; a Politico morning ehealth report on VA's rollout of standards-based APIs for partners to connect apps and programs to the Veterans Health Administration, and lastly, a press release from Camilo Sandoval discusses VA's Enterprise Cloud and the EHRM.

EHRM/VA News

Kansas City Business Journal: Report: Trump's 'Mar-a-Lago crowd' got a first crack at Cerner-VA EHR deal (Dec. 7, 2018, Andrew Grumke)

*Three men who belong to President Donald Trump's private Mar-a-Lago club got a first crack at reviewing Cerner Corp.'s proposed contract to revamp the U.S. Department of Veteran Affairs' electronic health record system, including touting an app one of them was developing.

*The three men have little to no health IT or federal contracting experience, and none served in the military or elsewhere in government, but they were among a group of about 40 who received confidential access to review the contract, including high-profile hospital executives, according to emails and documents reviewed by ProPublica.

*The three men were Ike Perlmutter, chairman of Marvel Entertainment; Bruce Moskowitz, a West Palm Beach physician; and lawyer Marc Sherman. All were part of Trump's circle at Mar-a-Lago, the report says.

Politico: Texas needs government money to make telemedicine happen (Dec. 10, 2018, Arthur Allen)

*VA (MORE) OPEN FOR BUSINESS: On Friday, the agency released details on its rollout of standards-based APIs for partners to connect apps and programs to the Veterans Health Administration. The APIs, based on the FHIR standard, were discussed at a White House meeting last week on health care data interoperability.

*CNN finds speeches by VA Secretary Robert Wilkie revealing his profound sympathies for the confederate cause

CIO Applications: VA Looks to the Cloud (Dec. 10, 2018, Camilo Sandoval)

*The VA Enterprise Cloud is designed to streamline the workflows of project teams by representing a

common, logical architecture based on open standards.

*As VA moves to a single instance of its EHR, this IT modernization also extends VA an opportunity to rapidly scale health IT innovations across the entire organization in a way not possible before.

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VA Secretary's Stand-Up Brief

10 December 2018

Executive Summary

CNN's article on Sec. Wilkie's 1995 speech on Jefferson Davis led national coverage on Friday and quickly dissipated on Saturday.

Storyline	Outlets	Analysis	Trend	Priority
Sec. Wilkie's 1995 speech on Jefferson Davis	CNN , Washington Post 1, 2 , Task & Purpose , Huffington Post , The Hill , Intelligencer	CNN began reporting on a speech reportedly given by Sec. Wilkie in 1995 at an event sponsored by the United Daughters of the Confederacy at the occasion of an annual celebration of Jefferson Davis' birthday. <i>The Washington Post</i> (1) published a similar story. <i>Task & Purpose</i> published additional statements from the 1995 speech. Other stories were mostly based on the original CNN article. Many articles quoted Press Sec. Cashour's statement that the events attended by the Secretary were, "historical in nature," and that, "he stopped participating in them once the issue became divisive." On Saturday, <i>The Washington Post</i> (2) used the previous day's reporting as a segue into an article holding that Jefferson Davis was "loathed in the Confederacy."	Emerged	Other
Telehealth program expanding	Military Times , mHealth , Intelligence , Politico	This storyline increased in visibility, and coverage was supportive. <i>Military Times</i> incorporated Sec. Wilkie's statement from the telehealth conference that, "Virtual care is the future of medicine [...] It is our most powerful emerging tool. Ultimately it will improve and ease access for millions of Americans."	Sustained	Service
Women Veterans and Suicide	VOA	VOA drew attention to Women Veterans and Suicide, and VA's role in lowering the prevalence. Deputy Dir. of Suicide Prevention Megan McCarthy provided some messaging for the piece.	Long-term	Suicide
VA could be getting too much money	Military Times	<i>Military Times</i> provided space to CVA's Dan Caldwell to make a case that VA is receiving too many funding increases.	Emerged	Service



VA Secretary's Stand-Up Brief

10 December 2018

Social Media Takeaway

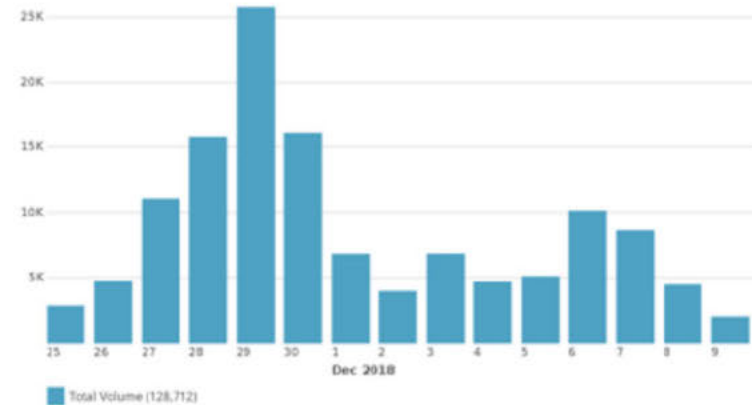
Social media activity on Friday and Saturday largely shifted to CNN's coverage of Sec. Wilkie and comments about the Confederacy. Volume was unusually low on Sunday.

Key Points

- All top posts on Sec. Wilkie's 1995 speech on Jefferson Davis linked to the original CNN article written by, among others, Andrew Kaczynski. @KFILE (Andrew Kaczynski) wrote the weekend's [most-retweeted post](#), highlighting Sec. Wilkie's reported statement that Jefferson Davis was a "martyr to the Lost Cause" (3.5k+ retweets). Two others posts by @KFILE quoted more 1995 statements from the Secretary ([330+](#) retweets, [300+](#) retweets).
- In the [sixth](#) top post, @jaketapper mirrored the leading @KFILE tweet (490+ retweets). In the [eighth](#) post, @splcenter (Southern Poverty Law Center) hashtagged #LoseTheLostCause (300+ retweets). In the [tenth](#) post, @AdamSerwer, a writer at *The Atlantic*, labelled the Secretary as a "neo-confederate" (260+ retweets).
- In the [second most-retweeted](#) post, @SenKamalaHarris promoted the offer by the "Northern California Veterans Administration" for job-placement assistance for disaster survivors of the Camp, Hill and Woolsey fires (2.2k+ retweets).
- @SenDuckworth's 6 Dec. tweet on GI Bill delays was in [third](#) position (1.2k+ additional retweets, 2.7k+ total).
- [@elizabethforma](#) (Sen. Elizabeth Warren) linked to the 3 Dec. *ProPublica* [article](#) on Mar-a-Lago (870+ retweets). [@SenWarren's](#) similar 6 Dec. tweet garnered an additional 570+ retweets (2.4k+ total).

Twitter and Facebook Volume:

25 November – 9 December



Notable Social Media Items

Platform	Item	Relevance
Twitter	Topic: The Confederacy / Jefferson Davis	37% of Volume
Twitter	Topic: GI Bill delays	8% of Volume
Twitter	@SenKamalaHarris	8% of Volume
Facebook	CNCMachines.net Encourages Vets to Consider Manufacturing Careers [...]	5+ Reactions, 5+ Shares, 0 Comments

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VA Secretary's Stand-Up Brief

10 December 2018

Military Times: Online VA medical appointments expanding to Walmart sites, VFW posts (7 December, Leo Shane III, 471k uvm; Springfield, VA)
In coming months, when veterans are trying to decide whether to go to a Veterans Affairs hospital or a private doctor for their check-up, they may opt for a trip to Walmart instead. Department officials on Thursday announced a series of new telehealth partnerships designed to dramatically expand their current remote care offerings, to include online exam rooms in Walmarts, American Legion posts and Veterans of Foreign War hangouts centered in rural areas across the country.

[Hyperlink to Above](#)

WCJB (ABC-20, Video): Lake City VA Medical Center receives gifts and visitors from south Georgia (8 December, 59k uvm; Gainesville, FL)
The Lake City VA Medical Center received a special visit from visitors out of south Georgia Friday. Residents from Hehira, Valdosta, and King's Bay Naval Base arrived in a caravan of over 30 vehicles. They brought donations and visited with patients. The annual visit provides personal care items and other gifts. It also gives the veterans and patients someone to talk to.

[Hyperlink to Above](#)

The News-Review: Outgoing director says Roseburg VA's future is bright (8 December, Carisa Cegavske, 33k uvm; Roseburg, OR)
Dave Whitmer arrived at the Roseburg Veterans Affairs Medical Center in February to take on the role of interim director. He was brought in as a "fixer," tasked with turning around a VA that was struggling with problem managers, low staff morale and allegations of bullying and whistle-blower retaliation.

[Hyperlink to Above](#)

Times Record: Residents pay respects at Christmas Honors (9 December, Thomas Saccente, 22k uvm; Fort Smith, AR)
Cold air, light rain and overcast skies did nothing to stop hundreds of local residents from honoring those who fought for their country on Saturday. The U.S. National Cemetery at Fort Smith held the 10th annual Christmas Honors wreath event Saturday, where families laid wreaths from 8 a.m. to 11 a.m. at the cemetery, with a ceremony following.

[Hyperlink to Above](#)

mHealth Intelligence: VA Announces Telehealth Partnerships With Walmart, Philips, T-Mobile (7 December, Eric Wicklund, 18k uvm; Danvers, MA)

The Department of Veterans Affairs is expanding its "Anywhere to Anywhere VA Health Care" program with new telehealth and telemedicine partnerships. At this week's "Anywhere to Anywhere Together" summit in Washington DC, the VA announced connected care programs with Walmart, T-Mobile and Philips designed to give veterans more opportunities to connect with healthcare providers through telehealth.

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Date: Tue Dec 04 2018 10:31:36 EST
Attachments: 181204_VA Secretary's Stand-Up Brief.pptx

Attached is the SECVA stand-up for today and below is the EHRM in the news. As a note, both should be considered internal communication products for awareness only and should not be shared unless otherwise directed.

EHRM in the News

Tuesday, December 4, 2018

News Summary: Today's news clips include continued coverage about ProPublica's article regarding the release of emails from Trump associates which states they influenced the EHRM effort, and a Forbes article about solutions to health care's \$6 billion patient record matching problem.

EHRM/VA News

The Hill: Mar-a-Lago trio reviewed confidential \$10 billion VA contract before its release: report (Dec. 3, 2018, Owen Daugherty)

*Three Mar-a-Lago club members friendly with President Trump were reportedly given access to review a \$10 billion government contract to overhaul electronic health records for veterans even though they had no prior experience in the field.

*The three men, Marvel Entertainment Chairman Ike Perlmutter, West Palm Beach physician Bruce Moskowitz and lawyer Marc Sherman, were given unprecedented access to confidential documents and shaped policy at the Department of Veterans Affairs (VA), according to emails obtained by ProPublica through a Freedom of Information Act request.

Politico: Interoperability day at the White House (Dec. 4, 2018, Mohana Ravindranath)

*WHITE HOUSE INTEROPERABILITY FORUM: The Trump administration is delving deeper into health data issues, this time with an interoperability discussion. CMS Administrator Seema Verma — who has partnered with White House senior adviser Jared Kushner on the MyHealthData effort — is scheduled to attend, as is ONC head Don Rucker. We'll have updates after the event this afternoon.

*MORE DIRT ON THE MAR-A-LAGO THREE: A ProPublica article based on FOIA'd emails and other documents shows how deeply the three Trump associates at the president's Florida club were involved in efforts to overhaul the VA's EHR — a role that VA Secretary Robert Wilkie has apparently rejected, as the GAO and House Democrats have promise an investigation of the trio.

*According to emails, Marvel Entertainment chairman Ike Perlmutter, West Palm Beach physician Bruce Moskowitz and lawyer Marc Sherman reviewed a confidential draft of the \$10 billion Cerner EHR contract and reworded a non-disclosure agreement to allow themselves to talk about it amongst themselves. In one June 2017 email, Moskowitz named himself, Perlmutter and Sherman to an "executive committee" that included VA officials and top health care executives who'd been brought in to counsel the VA on its EHR project.

General EHR Articles

Forbes: The Best Solutions To Health Care's \$6 billion Patient-Matching Problem (Dec. 4, 2018, Rahul Sharma)

*The health care industry is plagued with a problem that harms patient safety and exacts an annual toll of \$6 billion: patient record matching.

*Patient record matching refers to the issue of correctly identifying a patient within the same facility or across different health care organizations.

*Besides the monetary issue, patient matching challenges can also cause severe harm to patients. The issue is so acute that it impacts 1 in 5 patient records within the same health care system, and up to 50% of patient records are not matched in transfers.

*So, how do we fix it? Here are the best solutions to the patient-matching problem

*National Patient Identifier

*A 'Smart' Enterprise Master Patient Index (EMPI)

*Faster, more accurate record matching through machine learning

*Standardization enforced by CMS

*Other Possible Solutions

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VA Secretary's Stand-Up Brief

4 December 2018

Executive Summary

Outlets began reprinting *ProPublica's* new report on Mar-a-Lago, however GI Bill delays remained the most visible storyline nationwide.

Storyline	Outlets	Analysis	Trend	Priority
Newly released documents on Mar-a-Lago	ProPublica , The Hill	<i>ProPublica</i> reported on "hundreds of newly released documents" on Mar-a-Lago, which purportedly show the trio had influence over EHR decisions. The article stated that for a \$10B EHR (Cerner) contract, VA consulted with over 40 outside experts, including the trio, who, according to Isaac Arnsdorf, did not have relevant experience to contribute to the project. Among other claims, the piece argued that Bruce Moskowitz had undue influence concerning the development of a VA app with Apple. <i>The Hill</i> summarized the story.	Emerged	Inter-operability / Other
VA "reverses course" on GI Bill	Politico , Stars and Stripes	<i>Politico</i> briefed the main Congressional actions from the end of last week taken on the GI Bill. <i>Stars and Stripes</i> gave a relatively clear explanation of where last week's confusion came from and how VA intends to make a full retroactive reimbursement to all concerned Veterans. The piece also stated there are questions about VA fully implementing Section 107 of the Forever GI Bill.	Declined	Interests
Tomah VAMC housing program delayed	La Crosse Tribune 1, 2	<i>La Crosse Tribune</i> published two articles on neighbors' concerns leading to delays for the transitional housing project at the Tomah VAMC. Dir. Victoria Brahm provided much of the messaging. Coverage mentioned that VA has revised parts of the program, with a proposal for increased staffing, and a reduced number of residents.	Emerged	Interests



VA Secretary's Stand-Up Brief

4 December 2018

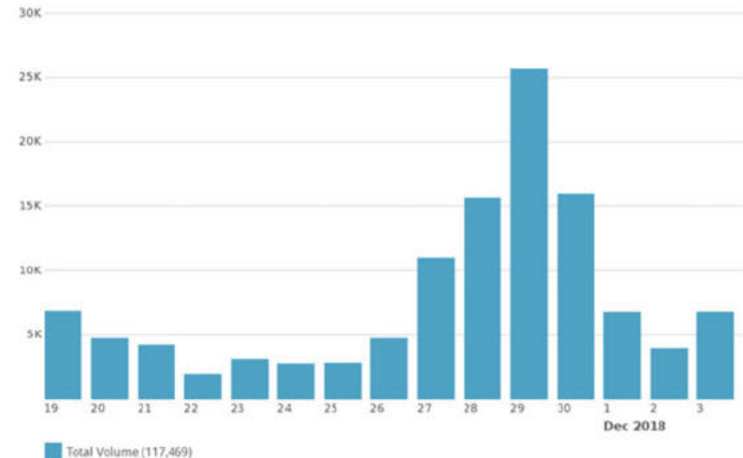
Social Media Takeaway

Mar-a-Lago trended heavily on social media while activity related to GI Bill delays all but disappeared.

Key Points

- Nine of the top 10 tweets pertained to Mar-a-Lago.
- @ProPublica posted the top three tweets, as well as the seventh tweet, embedding its 3 Dec. [article](#) in each. The [top tweet](#) (920+ retweets) and the [second](#) top tweet (900+ retweets) said the "3 Trump associated secretly steered the VA," and listed decisions in which they purportedly participated. In the [third](#) and [seventh](#) most-retweeted posts, @ProPublica claimed emails show the three members were involved in some of the Department's most "consequential matters," including EHR modernization (810+ retweets and 490+ retweets, respectively). A similar tweet by [@iarnsdorf](#) garnered 380+ retweets.
- [@votevets](#) (800+ retweets), [@ellievan65](#) (470+ retweets), [@elizabethforma](#) (Sen. Elizabeth Warren, 460+ retweets), and [@CREWcrew](#) (Citizens for Ethics, 280+ retweets) also wrote on Mar-a-Lago with some emphasis on the trio's involvement in EHR decisions. Sen. Warren again included #EndCorruptionNow, which was the top hashtag of the period.
- [@JasonKander](#), who withdrew from the Kansas City mayoral race to seek PTSD treatment, wrote the only top ten tweet that was not on Mar-a-Lago. It said his appointments at the VA PTSD clinic in Kansas City are "going well" and he's "making good progress" (600+ retweets, 15.6k+ likes).
- On YouTube, the 1 Dec. [Daily Show](#) video on the GI Bill garnered an additional 83k+ views (654k+ total views).

Twitter and Facebook Volume: 19 November – 3 December



Notable Social Media Items

Platform	Item	Relevance
Twitter	Topic: Mar-a-Lago	52% of Volume
Twitter	Topic: GI Bill delays	4% of Volume
Twitter	#EndCorruptionNow	460+ Mentions
Facebook	VA-18-0298-F, VA-18-0299-F-000019 Veteran of the Day: Joseph L. Anello (USA)	400+ Reactions, 80+ Shares



VA Secretary's Stand-Up Brief

4 December 2018

Berkeley News (Video): Hang in there. As couples age, humor replaces bickering (3 December, Yasmin Anwar, 758k uvm; Berkeley, CA)
Honeymoon long over? Hang in there. A new UC Berkeley study shows those prickly disagreements that can mark the early and middle years of marriage mellow with age as conflicts give way to humor and acceptance. Researchers analyzed videotaped conversations between 87 middle-aged and older husbands and wives who had been married for 15 to 35 years, and tracked their emotional interactions over the course of 13 years.

[Hyperlink to Above](#)

Foster's Daily Democrat: New VA clinic to expand services in Somersworth (3 December, John Doyle, 47k uvm; Dover, NH)
More community-based clinical-care options, as well as mental-health and women's health services for veterans are needed in New Hampshire, according to U.S. Sen. Maggie Hassan, D-NH. Hassan made her remarks Monday morning at a groundbreaking ceremony for the U.S. Department of Veterans Affairs' Somersworth Community Based Outpatient Clinic.

[Hyperlink to Above](#)

KCO (NBC-11): VA benefits coordinator helps vets with health care (3 December, Jason Burger, 29k uvm; Grand Junction, CO)
The Grand Junction VA Medical Center is trying to get more veterans enrolled for health care and benefits. They have a full-time VA Benefits Coordinator to help make that happen. Scott Johnston says he was a by the book soldier, and says he was never told how to get VA benefits after his time in the Army.

[Hyperlink to Above](#)

KREX (CBS-5, Video): VA Assists Veterans To Get Healthcare And Benefits (3 December, Star Harvey, 12k uvm; Grand Junction, CO)
Thousands of Western Slope veterans are not getting the healthcare and benefits they are entitled to, but something is now being done to correct that problem, and help veterans navigate the process to obtain benefits. U.S. Army Veteran Scott Johnston filled many roles to protect and honor his country.

[Hyperlink to Above](#)

Hawaii Public Radio (Audio): Veterans Leading the Charge on Genetic Medicine (3 December, Ryan Finnerty, 5k uvm; Honolulu, HI)
Since 2011 more than 700,000 veterans nationwide have donated their genetic information to help the Department of Veterans Affairs research the origins of disease and find new treatments. It's called the Million Veteran Program. In 2015 MVP became the largest human genomic database in the world.

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From: (b) (6) </o=exchangelabs/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=(b) (6)>
To: Windom, John H. </o=exchangelabs/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=(b) (6)>; Kroupa, Laura (V15) </o=exchangelabs/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=(b) (6)>; Short, John (VACO) </o=exchangelabs/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=(b) (6)>
Cc: (b) (6) </o=exchangelabs/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=(b) (6)>
Bcc:
Subject: FW: EHRM in the News - Monday, December 3, 2018
Date: Mon Dec 03 2018 10:53:34 EST
Attachments:

Good morning,

Just wanted to make you aware of news related to EHRM this morning.

Thanks,

(b) (6)

EHRM in the News

Monday, December 3, 2018

News Summary: Today's news clips include an investigative article from ProPublica about the release of emails from Trump associates which indicates how they influenced the EHRM effort, an article from Becker's Hospital Review about how the EHRM office is hiring 135 more people by June, and a Politico article detailing the White House's plans for a an executive forum on health care interoperability set for Tuesday afternoon.

ProPublica: VA Shadow Rulers Had Sway Over Contracting and Budgeting (Dec. 3, 2018, Isaac Arnsdorf)

*Newly released emails about the three Trump associates who secretly steered the Department of Veterans Affairs show how deeply the trio was involved in some of the agency's most consequential matters, most notably the EHRM.

*Marvel Entertainment chairman Ike Perlmutter, West Palm Beach physician Bruce Moskowitz and lawyer Marc Sherman — part of the president's circle at his Mar-a-Lago resort in Florida — reviewed a confidential draft of a \$10 billion government contract for the electronic-records project, even though they lack any relevant expertise.

*In preparing the contract, the agency consulted more than 40 outside experts, such as hospital executives, according to the records, which were released under the FOIA. The Mar-a-Lago trio were listed among those experts. Perlmutter, a comic book tycoon, appears on the list between representatives from the University of Washington Medical Center, Intermountain Healthcare and Johns Hopkins University.

Becker's Hospital Review: VA EHR modernization office to hire 135 more people by June (Nov. 28, 2018, Jessica Kim Cohen)

*John Windom, project leader for the Department of Veterans Affairs' Cerner EHR implementation, said he plans to hire additional help for the effort.

*"I need help. In no way have we completed our team," Mr. Windom said at an interoperability forum hosted by Mitre Corp.

*"I want to move ahead more efficiently and effectively, but that requires more expertise," he added. "If you think you add value to what we're trying to accomplish, let me know."

*Mr. Windom specified he plans to hire 135 more people to the VA's Office of EHR Modernization during the next six months, which would bring the office's staff to 265.

Politico: December's heavy health IT agenda (Dec. 3, 2018, Arthur Allen)

*WHITE HOUSE WELCOME WAGON: The White House is hosting an "executive forum on health care data interoperability" Tuesday afternoon. We know of various EHR vendors, health care executives, interoperability mavens and other usual suspects who have been invited. The Holiday Season event kicks off with remarks from CMS Administrator Seema Verma and ONC chief Don Rucker, who presumably will not share that much about their big rules at OMB.

*After that, the guests in their finery will hold "breakout sessions." Let's hoping there is punch, peppermint bark, and mistletoe — under which providers, vendors and payers can kiss and make New Year's resolutions!

From: EHRM Public Affairs
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To: Windom, John H.
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Cc:
Bcc:
Subject: FYSA: EHRM in the News and SecVA Stand-Up - Wednesday, Nov. 7, 2018
Date: Wed Nov 07 2018 15:15:54 EST
Attachments: 181107_VA Secretary's Stand-Up Brief.pptx

EHRM in the News

Wednesday, November 7, 2018

EHRM/VA News

Politico: Wave breaks on GOP House control (Nov. 7, 2018, Arthur Allen)=

*Democrats have — by all indications — taken the House Tuesday night, while the GOP tightened their grip on the Senate. The result likely rules out another GOP-led attempt to repeal and replace Obamacare, and sets House Democrats up to police the Trump administration's management of health care policy.

*We might also see bipartisan national privacy legislation, which, depending on how it's handled, might jostle regulation of the health sector.

*The changeover, of course, means a new cast of characters chairing the important committees. In the House, we're likely to see Rep. Frank Pallone chairing the Energy and Commerce Committee and Rep. Mark Takano (likely) leading the Veterans' Affairs Committee. Both chairs will play a role in monitoring the Trump administration's activities — in particular the VA's implementation of the Cerner EHR.

Meri Talk: VA CISO Details Modernization, EHR Implementation Efforts (Nov. 6, 2018, no author listed)

*While the Department of Veterans Affairs is approaching IT modernization with a strong desire to improve systems, especially when it comes to electronic health records (EHR), the agency is taking care not to shut down existing systems too early, said deputy CIO and chief information security officer Dominic Cussatt during an episode of Government Matters that aired on Sunday.

*Digitization of business processes, another one of VA's goals, also has seen success, winning the VA

U.S. Digital Service team a Sammie award. Cussatt pointed to the creation of a strategic sourcing arm and an account management office as beneficial to digitization efforts.

General EHR News

The New Yorker: Why Doctors Hate Their Computers (Nov. 12, 2018 edition, Atul Gawande)

*In a piece in The New Yorker this morning, Gawande, the surgeon, writer and CEO of the much-publicized and still somewhat mysterious Berkshire-Hathaway, Amazon, JP Morgan health care venture, lays out a devastating case for how EHRs have failed doctors.

*"Something's gone terribly wrong. Doctors are among the most technology-avid people in society ... yet somehow we've reached a point where people in the medical profession actively, viscerally, volubly hate their computers."

*The problem isn't really limited to medicine, in many other fields, the mounting complexity of software, the requirement that it adapt and serve new people and purposes, have created what he calls "the Tar Pit." Technology will continually increase medicine's ability to make diagnoses, offer treatments, and document them—"but not necessarily to make sense of it all."

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VA Secretary's Stand-Up Brief

7 November 2018

Executive Summary

The midterm election results dominated national news, with many references to Veterans as a group or as candidates, but very few of these articles mentioned VA. Veterans Day and Wreaths Across America events sparked positive local coverage.

Storyline	Outlets	Analysis	Trend	Priority
Democrats gain control of key House Veteran, Military committees	Stars and Stripes	Following the results of the midterm election, <i>Stars and Stripes</i> reported that Democrats have taken over leadership of the key House committees of Armed Services, Veterans Affairs and Appropriations. Democrats' success in the House was attributed "in large part to a new wave of military veterans being elected to new congressional seats."	Emerged	Other
VA CISO discusses EHR modernization	MeriTalk	Relying on extensive messaging from Deputy CIO and Chief Information Security Officer Dominic Cussatt, <i>MeriTalk</i> published this supportive piece outlining VA's EHR modernization goals of retiring legacy systems, digitizing business processes, increasing cybersecurity and improving data management. The article noted the Department's success in business process digitization, noting the Digital Service team won a Sammie award for its efforts.	Sustained	Inter-operability
NYC helps Veterans affected by GI Bill delays	ConnectingVets.com	<i>ConnectingVets.com</i> covered NYC's efforts to help 12k Veterans affected by GI Bill payment delays, reporting that the city's Department of Social Services is providing emergency rent benefits to Veterans who are at risk of eviction due to the delays.	Sustained	Interests
VHA has a "severe" job vacancy problem	Pew Research Center	This article detailed an analysis by <i>Pew's Stateline</i> of recent federal figures showing VHA has a "severe" job vacancy problem in high-cost urban areas and in largely rural states, reporting that 40,000 of 335,000 positions remain unfilled. Sec. Wilkie was quoted as saying the number of vacancies is "staggering," and the Department has increased hiring in the past two years to address the issue.	Long-term	Service



VA Secretary's Stand-Up Brief

7 November 2018

Social Media Takeaway

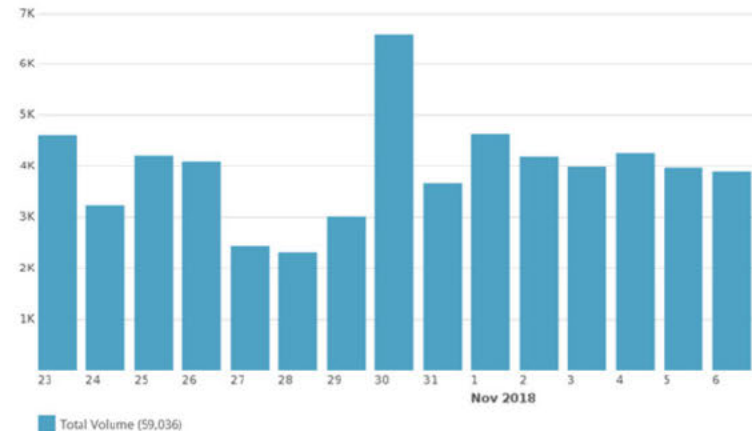
Volume was average yesterday. All posts receiving over 100 retweets centered on the election, with the exception of a tweet by HUD Sec. Carson.

Key Points

- Impactful Twitter activity was highly partisan yesterday, claiming that one of the two parties will help VA on wait times, job openings, privatization, or other aspects of health care access. In support of Democrats, @lindeelloo_who wrote the [most-retweeted post](#) (650+ retweets). @amvetssupport had the [second most-retweeted](#) post (640+ retweets). The [3 Nov. post](#) by @KayKosmos sustained, garnering an additional 370+ retweets (2.3k total). In support of the GOP, @KamVTV's [5 Nov. post](#) incorporating the "false news" meme sustained, with an additional 110+ retweets (380+ total).
- In the [sixth-most retweeted](#) post, @SecretaryCarson linked to the 5 Nov. [article](#) in *Affordable Housing Finance* on the decrease in Homelessness (140+ retweets).

Twitter and Facebook Volume:

23 October – 6 November



Notable Social Media Items

Platform	Item	Relevance
Twitter	Topic: Republicans or Democrats support VA	16% of Volume
Twitter	#Veterans	160+ Mentions
Facebook	VAntage Point: On Veterans Day a Vet says Thank You to all Vets	570+ Reactions, 70+ Shares

VA-18-0298-F, VA-18-0299-F-000027

000027



VA Secretary's Stand-Up Brief

7 November 2018

PM Network: 2018 PMI Project of the Year Winner. Full Recovery: A team rebuilt a hospital for military veterans - restoring healthcare and order for a battered city. (November, Sarah Fister Gale; Newtown Square, PA)

Hurricane Katrina decimated thousands of buildings in New Orleans, Louisiana, USA, in 2005, including a U.S. Department of Veterans Affairs (VA) medical facility that served approximately 40,000 military families. The hospital, also where world-class research was conducted and more than 500 medical students were training to become physicians, suffered so much damage that it had to be replaced.

[Hyperlink to Above](#)

TMC News: On the front lines of health care (6 November, Britni R. McAshan, 2M uvm; Houston, TX)

Today, Burns serves as Associate Director of the Stroke Program and a family nurse practitioner on the neurology care line at the Michael E. DeBakey VA Medical Center Houston. "One of things I learned and carry with me today is that the military is like a family," Burns said. "It is similar here at the VA because we are like a family..."

[Hyperlink to Above](#)

Temple Daily Telegram: Quilts of Valor: Veterans presented with quilts in honor of service (5 November, 25k uvm; Temple, TX)

Veterans who continue to serve other veterans by working and volunteering at the Olin E. Teague Veterans' Medical Center were given quilts today in honor of their service. Quilts were presented to 11 from the VA staff and a volunteer. The Texas Patriotic Piecemakers, a regional group of Quilts of Valor Foundation, brought the quilts to Temple on Monday to hand out.

[Hyperlink to Above](#)

MeriTalk: VA CISO Details Modernization, EHR Implementation Efforts (6 November, 11k uvm; Alexandria, VA)

While the Department of Veterans Affairs is approaching IT modernization with a strong desire to improve systems, especially when it comes to electronic health records (EHR), the agency is taking care not to shut down existing systems too early, said deputy CIO and chief information security officer Dominic Cussatt during an episode of Government Matters that aired on Sunday.

[Hyperlink to Above](#)

Beacon Senior News: Veterans on the MOVE! (6 November, Melanie Wiseman, 170 uvd; Grand Junction, CO)

September 16, 2017, is a date veteran Clifford Wheeler will never forget. It was the day he joined the Grand Junction Veterans Affairs (VA) Medical Center's MOVE! program—a decision that radically changed his life for the better. Weighing 353 pounds when he started, Wheeler felt constantly exhausted. He suffered from severe knee pain and couldn't tie his shoes. In just over a year after joining MOVE!, he dropped 127 pounds and 36 percent of his body weight, closing in on his goal of 190.

VA-18-0298-F, VA-18-0299-F-000028

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To: Kroupa, Laura (V15)
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Cc:
Bcc:
Subject: [EXTERNAL] Re: article
Date: Wed Aug 08 2018 11:31:48 EDT
Attachments:

Thanks. Though I don't think enjoy is probably the emotion I will feel.

On Wednesday, August 8, 2018 9:43 AM, "Kroupa, Laura (V15)" (b) (6) @va.gov> wrote:

You might enjoy this article-click on the ProPublica link.

*The second, published by ProPublica, is focused on the trio of executives and doctors who have been steering VA policy in informal roles. Our colleague, Arthur Allen, first reported on this group's role in connection with the Cerner EHR deal, and the new article expands on their role. The group — the most high-powered of which is Marvel Entertainment boss Ike Perlmutter — is unusually tech-oriented. By the article's account, they're constantly pitching new apps and registries for VA adoption.

Laura

From: (b) (6) (VISN 8)
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To: Kroupa, Laura (V15)
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Cc:
Bcc:
Subject: FW: [EXTERNAL] 8 August Veterans Affairs Media Summary and News Clips
Date: Wed Aug 08 2018 05:55:04 EDT
Attachments: 180808_Veterans Affairs Media Summary and News Clips.docx
180808_Veterans Affairs Media Summary and News Clips.pdf

Hi Laura - read 1.3 "shadow rulers of the VA". This resonates with things I have experienced with the office. Good read in my opinion!

From: VA Media Analysis <(b) (6)@barbaricum.com>
Sent: Wednesday, August 8, 2018 4:16:22 AM
To: Barbaricum VA Media Analysis
Subject: [EXTERNAL] 8 August Veterans Affairs Media Summary and News Clips

Good morning,

Please find the attached Veterans Affairs Media Summary and News Clips.

Owner: (b) (6) (VISN 8) </o=exchangelabs/ou=exchange administrative
group (fydibohf23spdlf)/cn=recipients/cn=(b) (6) >
Filename: 180808_Veterans Affairs Media Summary and News Clips.docx
Last Modified: Wed Aug 08 04:55:04 CDT 2018



Veterans Affairs Media Summary and News Clips

8 August 2018

1. [Top Stories](#)

1.1 - WHAM (ABC-13, Sinclair, Video): [1-on-1 with new VA Secretary Robert Wilkie Jr.](#) (7 August, Scott Thuman, 817k uvm; Rochester, NY)

It's one of the most difficult jobs in all of Washington: running the Department of Veterans Affairs and looking after the well-being of 9 million veterans annually. After years of mismanagement, a new leader is trying to turn that around. In the video above, VA Secretary Robert Wilkie sits down with chief political correspondent Scott Thuman to explain why he thinks he'll succeed where others have failed.

[Hyperlink to Above](#)

1.2 - Military.com: [New VA Secretary Pledges Cleanup Of Scandal-Plagued DC Hospital](#) (7 August, Richard Sisk, 9M uvm; San Francisco, CA)

In his second week on the job, new VA Secretary Robert Wilkie pledged a cleanup of the scandal-plagued Washington, D.C., Department of Veterans Affairs Medical Center where inspectors found doctors using rusty surgical tools and identified a sense of "complacency" in the facility's leadership.

[Hyperlink to Above](#)

1.3 - ProPublica: [The Shadow Rulers of the VA](#) (7 August, Isaac Arnsdorf, 1.1M uvm; New York, NY)

Last February, shortly after Peter O'Rourke became chief of staff for the Department of Veterans Affairs, he received an email from Bruce Moskowitz with his input on a new mental health initiative for the VA. "Received," O'Rourke replied. "I will begin a project plan and develop a timeline for action."

[Hyperlink to Above](#)

1.4 - U.S. News & World Report (AP): [Report: Madison VA Hospital Care Deficient Before Suicide](#) (7 August, 23.9M uvm; Washington, DC)

A new federal report finds that Madison's Veterans Hospital provided deficient care for a patient who killed himself a day after being discharged last year. The report by the VA Office of the Inspector General found that hospital staff did not hold the man for an additional 72 hours, as they could have. The report also cited problems with discharge planning, follow-up and outpatient pharmacy care.

[Hyperlink to Above](#)

1.5 - The Chippewa Herald: [Madison VA hospital's care deficient before veteran's death by suicide, report says](#) (7 August, David Wahlberg, 197k uvm; Chippewa Falls, WI)

Madison's Veterans Hospital provided deficient care for a mentally ill patient who killed himself a day after being discharged last year, according to a new federal report. Staff didn't hold the man for an additional 72 hours, as they could have, and there were problems with discharge planning, follow-up and outpatient pharmacy care, says a report by the VA Office of the Inspector General.

[Hyperlink to Above](#)

2. Greater Choice for Veterans

2.1 - CNBC: Three civilians from Mar-a-Lago are reportedly making decisions for the VA

(7 August, Yen Nee Lee, 26.1M uvm; Englewood Cliffs, NJ)

An "informal council" of three people who have neither served in the U.S. military nor hold government positions was found to exert "sweeping influence" on policies concerning America's military veterans, ProPublica reported on Tuesday.

[Hyperlink to Above](#)

2.2 - The Hill: Mar-a-Lago insiders provided input on VA policy, personnel decisions: report

(7 August, Brett Samuels, 11.8M uvm; Washington, DC)

A trio of high-profile individuals with ties to President Trump's Mar-a-Lago golf club provided input and directives to staff at the Department of Veterans' Affairs (VA), despite never serving in government or the military.

[Hyperlink to Above](#)

3. Modernize Our System

3.1 - Stars and Stripes: We can give GIs seamless, lifetime medical records

(7 August, Rep. Jim Banks (R-Ind.), 1.5M uvm; Washington, DC)

This Congress has been the most productive in decades in delivering results for our veterans. We've sent bipartisan legislation to President Donald Trump's desk that brings accountability to the Department of Veterans Affairs, increases transparency in the timeliness and quality of care, and streamlines the broken appeals process for disability claims — and passed the largest expansion of GI Bill benefits since the original GI Bill was signed into law. The House has passed more than 70 veterans bills and 26 of those have been signed by the president.

[Hyperlink to Above](#)

3.2 - WBTV (CBS-3): Salisbury VA to open new clinical laboratory and ICU

(7 August, David Whisenant, 319k uvm; Charlotte, NC)

A special ribbon cutting will be held on Wednesday for the new clinical lab and ICU at the W.G. "Bill" Hefner Veterans Administration Medical center in Salisbury. The new Salisbury VAMC clinical laboratory is a full-service lab that supports the inpatient hospital, the operating room, outpatient clinics, oncology clinic, dialysis and two free standing Health Care Centers.

[Hyperlink to Above](#)

3.3 - WJCT (NPR-89.9): Outpatient Health Clinic For Veterans Will Open In Orange Park

(7 August, Cyd Hoskinson, 54k uvm; Jacksonville, FL)

Military veterans in Clay County are getting a new Veterans Administration outpatient health clinic. 76-year-old Gary Newman started the Clay County chapter of the Vietnam Veterans of America. He said right now, the thousands of veterans who live in the area have to go to the VA clinic in Jacksonville for routine health care.

[Hyperlink to Above](#)

3.4 - VC Daily: [Military Telemedicine Extends Its Reach to Teletherapy for PTSD](#) (7 August, Charlotte T., 2k uvd)

Post Traumatic Stress Disorder is like a terrible echo of life-threatening events from the past. Its sufferers—and there are thousands of them across military and civilian life alike—can become haunted by memories of moments when they or their loved ones were faced with grave danger.

[Hyperlink to Above](#)

4. [Focus Resources More Efficiently](#)

4.1 - Stars and Stripes: [VA secretary to announce new leader for DC hospital](#) (7 August, Nikki Wentling, 1.5M uvm; Washington, DC)

The Department of Veterans Affairs secretary plans to announce a new, permanent leader for the Washington veterans hospital in the coming weeks after conditions at the facility were reported last month to have deteriorated to a critical level.

[Hyperlink to Above](#)

4.2 - WFED (AM-1500, Audio): [VA's former acting CIO reflects on his tenure](#) (7 August, Freshta Mohammad and Sean Kelley, 854k uvm; Washington, DC)

This Trump Administration has seen a great deal of turnover in career senior executives. The Veteran Affairs Department has definitely seen its share. For this month's show, Cyber Chat's host Sean Kelley sat down with a reflective Scott Blackburn. Blackburn served in many capacities while at the VA, including executive in charge of Secretary Robert McDonald's MyVA Initiative, acting deputy secretary of VA and acting CIO.

[Hyperlink to Above](#)

4.3 - Johnson City Press: [Mountain Home National Cemetery director resigns amid health crisis](#) (7 August, Becky Campbell, 194k uvm; Johnson City, TN)

When Mountain Home National Cemetery Director Jeny Walker and her staff accepted a national award for excellence last week, it was a professional high for her and the team. It was the second of three awards given by the National Cemetery Administration in her three years directing the cemetery. Walker oversaw a massive expansion project and established an outreach program more inclusive of the community.

[Hyperlink to Above](#)

4.4 - Williamson Daily News: [Hershel 'Woody' Williams VA, local professionals discuss vets' mental health](#) (7 August, Bishop Nash, 24k uvm; Williamson, WV)

The Hershel "Woody" Williams VA Medical Center in Huntington hosted its sixth annual mental health summit Friday afternoon, meeting jointly with outside mental health agencies toward serving their common goal in creating better lives and conditions for the area's military veterans.

[Hyperlink to Above](#)

5. [Improve Timeliness of Service](#)

5.1 - MLive: [Wurtsmith base water may have caused veteran cancers](#) (7 August, Garret Ellison, 10.9M uvm; Ann Arbor, MI)

Drinking water laced with high levels of poisonous chemicals may be to blame for cancer and other chronic disease among veterans and families who lived at Wurtsmith Air Force Base in northern Michigan, according to a new federal health report draft.

[Hyperlink to Above](#)

5.2 - Billings Gazette: [Veteran finds pain relief without pills through rehab and therapy with Billings naturopaths](#) (7 August, Susan Olp, 854k uvm; Billings, MT)

Casey Jourdan, a veteran of the Iraq War, is no stranger to pain. She spent six years in the Montana National Guard, and was deployed in Iraq for a year, starting in 2003. She primarily worked as a turret gunner doing convoy security. On April 13, 2004, she was wounded in a roadside bombing. It left her with permanent joint and nerve damage in her left shoulder, elbow and wrist.

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5.3 - WZTV (FOX-17): [Viral photo of Tennessee veteran on VA hospital floor sparks outrage](#) (7 August, Kaylin Jorge, 484k uvm; Nashville, TN)

A photo showing a veteran passed out on the floor at a middle Tennessee Department of Veterans Affairs hospital has sparked outrage and continues to go viral. However, the VA is saying the story being shared on social media isn't what transpired. FOX 17 News spoke with Gail Hobbs, who took a photo of her brother, Tony Sims, passed out on the floor at Murfreesboro VA.

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5.4 - The Telegraph: [Veterans serving veterans: County program fosters readjustment after service](#) (7 August, Jill Moon, 160k uvm; Alton, IL)

A pair of U.S. Army combat veterans are working together on two fronts to help discharged and retired veterans of any military branch, discharge type and era. Veterans' Assistance Commission (VAC) of Madison County Supervisor Bradley Lavite and Vet Center readjustment counselor Nathan Ferguson started a two-pronged VAC/Vet Center Group Outreach program that works toward a single goal of assisting veterans navigate the complex veterans health care and benefit system...

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5.5 - WMFE (NPR-90.7, Audio): [Intersection: The Road To Better Care For Veterans](#) (7 August, Brenda Argueta, 70k uvm; Orlando, FL)

One of the challenges facing Veterans after their service is getting access to healthcare. Veterans Affairs secretary Robert Wilkie, who was sworn in last week, will address American Veterans tomorrow at the group's annual convention in Orlando. Improving access to healthcare is one of the issues the service organization is looking to Wilkie to address.

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5.6 - WMBB (ABC-13): [Senator Nelson Speaks with Local Veterans](#) (7 August, Chelsie Taddonio, 50k uvm; Panama City, FL)

Veterans from around Bay County expressed concerns to U.S. Sen. Bill Nelson at a round table meeting in Panama City. Sen. Nelson spoke with veterans about a piece of legislation he is proposing, that would protect the military from being taken advantage of by payday loans. The

legislation would cap the interest rate at 24 %. He says this is so... "the poor member of the service doesn't keep building up these loans that they can't pay. And then have to declare bankruptcy."

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5.7 - White Mountain Independent: [Snowflake resident spearheads VA policy change](#) (7 August, Laura Singleton, 37k uvm; Show Low, AZ)
Julius Aubin, a Navy veteran and a resident of Snowflake since 2002, is a mover and a shaker. He can also breathe a little easier now – literally. Aubin has been on a mission to improve healthcare for veterans like himself who use portable oxygen tanks to help them breathe. Specifically, he wants veterans to “get out and be mobile.”

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6. [Suicide Prevention](#)

6.1 - Dispatch - Argus: [VA says reaching vets key to stopping suicide](#) (7 August, Jim Meenan, 311k uvm; Moline, IL)
The numbers speak harshly for themselves. Every day, about 20 U.S. veterans and current service men and women commit suicide. On average, only about six of those veterans are receiving care from the Veterans Administration.

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6.2 - The Daily News: [VA center in IM to host Mental Health Summit at Bay West](#) (7 August, 54k uvm; Iron Mountain, MI)
The Oscar G. Johnson VA Medical Center will host its sixth annual Mental Health Summit on Tuesday, Aug. 21, in Fornetti Hall at Bay College West, 2801 N. U.S.2 in north Iron Mountain. The event will be 9 a.m. to noon, and is open to local government human services, community mental health agencies, hospitals, veterans and their families, and any other interested organizations or individuals.

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7. [Women Veterans / Homelessness / Benefits / Cemeteries](#)

7.1 - WCTV (CBS-6, Video): [Local World War II vet has VA Clinic named in his honor](#) (7 August, Alicia Turner, 1.4M uvm; Tallahassee, FL)
You probably recognize the famous World War II photo of the flag being raised on Iwo Jima. But, the photo most think of wasn't the original flag to be raised. And, one of the soldiers who helped raise the first flag grew up in Monticello.

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7.2 - Tallahassee Democrat: [VA secretary helps rename vets clinic for Monticello Marine Ernest "Boots" Thomas](#) (7 August, James Call, 439k uvm; Tallahassee, FL)
Monticello's Dr. Jim Sledge remembers the ship-borne broadcast with Sgt. Ernest "Boots" Thomas a couple days after the iconic flag raising during the World War II battle for Iwo Jima. A

photo taken of it by the Associated Press appeared around the country in 1945 while the U.S. prepared a final assault on imperial Japan.

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7.3 - SportTechie: [U.S. Veteran Steve Kirk Uses Breath-Triggered Gun at Wheelchair Games](#) (7 August, Logan Bradley, 157k uvm; Washington, DC)

A 1980 skiing accident left U.S. Army veteran Steve Kirk with a dislocated neck and little use of his arms or legs. Almost forty years later, Kirk was competing at last week's National Veterans Wheelchair Games. Kirk took part in the air rifle competition thanks to a gun that is triggered by his breath.

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7.4 - St. George News: [Salt Lake City Veterans Affairs office to hold first 'Benefits Fair' in St. George](#) (7 August, Ryan Rees, 156k uvm; Saint George, UT)

Area veterans will be able to get assistance for a variety of needs when the Department of Veterans Affairs Salt Lake City regional office's outreach team hosts its first "Benefits Fair" Aug. 14 in St. George. [...] "This is new for us," said Thomas Lamb, outreach specialist in the St. George Veterans Affairs office. "They (Veterans Benefits Administration) are sending down two people who are the actual people who handle the benefits paperwork in the Salt Lake office."

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8. [Other](#)

8.1 - South Bend Tribune: [Viewpoint: Donnelly, a tireless advocate for vets, should be re-elected](#) (7 August, Joe Kernan, 274k uvm; South Bend, IN)

As a Vietnam War veteran and prisoner of war, a former governor of Indiana and a longtime South Bend resident, I believe that we need to re-elect Joe Donnelly to the U.S. Senate. Joe has been a tireless advocate for veterans and service members in the Senate. He works in a bipartisan and common-sense way to deliver real results for all Hoosiers.

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1. [Top Stories](#)

1.1 - WHAM (ABC-13, Sinclair, Video): [1-on-1 with new VA Secretary Robert Wilkie Jr.](#) (7 August, Scott Thuman, 817k uvm; Rochester, NY)

WASHINGTON - It's one of the most difficult jobs in all of Washington: running the Department of Veterans Affairs and looking after the well-being of 9 million veterans annually.

After years of mismanagement, a new leader is trying to turn that around.

In the video above, VA Secretary Robert Wilkie sits down with chief political correspondent Scott Thuman to explain why he thinks he'll succeed where others have failed.

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1.2 - Military.com: [New VA Secretary Pledges Cleanup Of Scandal-Plagued DC Hospital](#) (7 August, Richard Sisk, 9M uvm; San Francisco, CA)

In his second week on the job, new VA Secretary Robert Wilkie pledged a cleanup of the scandal-plagued Washington, D.C., Department of Veterans Affairs Medical Center where inspectors found doctors using rusty surgical tools and identified a sense of "complacency" in the facility's leadership.

Wilkie went to VAMC Monday, where he was told that plans were in place for "assuring reliable availability and sterilization of instruments for surgical procedures," the VA said in a release.

Wilkie also was told that an electronic inventory was being set up to make sure that the hospital, serving about 90,000 veterans in the D.C. area, overcomes chronic equipment shortages.

Previous reports from the VA's Office of Inspector General charged that VAMC staffers at times had to make emergency runs to neighboring hospitals to ask for supplies.

The hospital had to borrow bone material for knee replacement surgeries and also ran out of tubes needed for kidney dialysis, forcing staff to go to a private-sector hospital to procure them, the IG's report last year said.

VAMC officials also told Wilkie that they were doing better at making timely appointments, particularly for prosthetics.

"We had a good visit today, and I appreciated hearing from facility and regional leadership on the important work that has been done to address the Inspector General's concerns, as well as plans for resolving all its remaining recommendations," Wilkie said in a statement. "There have been substantial improvements over the past few months in practice management, logistics and prosthetics in particular, and leaders have a strong plan ahead for even more progress in the coming weeks."

Wilkie approved yet another shuffle of VAMC's leadership to implement the changes. The current acting director, Adam M. Robinson Jr., will return to his previous position as director of the VA Maryland Health Care System.

A new permanent director for VAMC has been identified, and the name will be announced "in the near future," the VA said.

In the interim, VAMC Chief of Staff Charles Faselis will serve as acting director of the facility.

Damning reports from VA Inspector General Michael Missal on conditions at VAMC were a factor in the downfall of Wilkie's predecessor as VA Secretary, Dr. David Shulkin, who was fired in a Tweet by President Donald Trump in March.

In April 2017, Missal took the unusual step of issuing an emergency report on conditions at VAMC before his inspection was complete to avoid putting patients at risk.

In his scathing report, IG Missal said that storage areas for medical supplies at the VAMC were filthy, management was clueless on what was in the storage areas, medical supply rejects may have been used on patients and more than \$150 million in supplies and equipment had never been inventoried.

Shulkin relieved VAMC Director Brian Hawkins and replaced him with Lawrence Connell, one of his top policy advisors and a retired Army colonel.

In early March, just before Shulkin was fired, Missal issued another report warning that for years VAMC had "suffered a series of systemic and programmatic failures to consistently deliver timely and quality patient care."

The report charged that there were staff shortages in several departments and that about \$92 million in supplies and equipment were purchased over a two-year period without "proper controls to ensure the purchases were necessary and cost-effective."

In April, Connell was out as temporary director following a dispute over "technical aspects" of his appointment, the VA said.

In his latest report on VAMC, Missal made 25 recommendations for improving care. The VA said Monday that VAMC had implemented six of the 25 recommendations and was working to resolve the remaining 19.

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1.3 - ProPublica: [The Shadow Rulers of the VA](#) (7 August, Isaac Arnsdorf, 1.1M uvm; New York, NY)

Last February, shortly after Peter O'Rourke became chief of staff for the Department of Veterans Affairs, he received an email from Bruce Moskowitz with his input on a new mental health initiative for the VA. "Received," O'Rourke replied. "I will begin a project plan and develop a timeline for action."

O'Rourke treated the email as an order, but Moskowitz is not his boss. In fact, he is not even a government official. Moskowitz is a Palm Beach doctor who helps wealthy people obtain high-service "concierge" medical care.

More to the point, he is one-third of an informal council that is exerting sweeping influence on the VA from Mar-a-Lago, President Donald Trump's private club in Palm Beach, Florida. The troika is led by Ike Perlmutter, the reclusive chairman of Marvel Entertainment, who is a longtime acquaintance of President Trump's. The third member is a lawyer named Marc Sherman. None of them has ever served in the U.S. military or government.

Yet from a thousand miles away, they have leaned on VA officials and steered policies affecting millions of Americans. They have remained hidden except to a few VA insiders, who have come to call them "the Mar-a-Lago Crowd."

Perlmutter, Moskowitz and Sherman declined to be interviewed and fielded questions through a crisis-communications consultant. In a statement, they downplayed their influence, insisting that nobody is obligated to act on their counsel. "At all times, we offered our help and advice on a voluntary basis, seeking nothing at all in return," they said. "While we were always willing to share our thoughts, we did not make or implement any type of policy, possess any authority over agency decisions, or direct government officials to take any actions... To the extent anyone thought our role was anything other than that, we don't believe it was the result of anything we said or did."

VA spokesman Curt Cashour did not answer specific questions but said a "broad range of input from individuals both inside and outside VA has helped us immensely over the last year and a half." White House spokeswoman Lindsay Walters also did not answer specific questions and said Perlmutter, Sherman and Moskowitz "have no direct influence over the Department of Veterans Affairs."

But hundreds of documents obtained through the Freedom of Information Act and interviews with former administration officials tell a different story — of a previously unknown triumvirate that hovered over public servants without any transparency, accountability or oversight. The Mar-a-Lago Crowd spoke with VA officials daily, the documents show, reviewing all manner of policy and personnel decisions. They prodded the VA to start new programs, and officials travelled to Mar-a-Lago at taxpayer expense to hear their views. "Everyone has to go down and kiss the ring," a former administration official said.

If the bureaucracy resists the trio's wishes, Perlmutter has a powerful ally: The President of the United States. Trump and Perlmutter regularly talk on the phone and dine together when the president visits Mar-a-Lago. "On any veterans issue, the first person the president calls is Ike," another former official said. Former administration officials say that VA leaders who were at odds with the Mar-A-Lago crowd were pushed out or passed over. Included, those officials say, were the secretary (whose ethical lapses also played a role), deputy secretary, chief of staff, acting under secretary for health, deputy under secretary for health, chief information officer, and the director of electronic health records modernization.

At times, Perlmutter, Moskowitz and Sherman have created headaches for VA officials because of their failure to follow government rules and processes. In other cases, they used their influence in ways that could benefit their private interests. They say they never sought or received any financial gain for their advice to the VA.

The arrangement is without parallel in modern presidential history. The Federal Advisory Committee Act of 1972 provides a mechanism for agencies to consult panels of outside advisers, but such committees are subject to cost controls, public disclosure and government oversight. Other presidents have relied on unofficial “kitchen cabinets,” but never before have outside advisers been so specifically assigned to one agency. During the transition, Trump handed out advisory roles to several rich associates, but they’ve all since faded away. The Mar-a-Lago Crowd, however, has deepened its involvement in the VA.

Perlmutter, 75, is painstakingly private — he reportedly wore a glasses-and-mustache disguise to the 2008 premiere of “Iron Man.” One of the few public photographs of him was snapped on Dec. 28, 2016, through a window at Mar-a-Lago. Trump glares warily at the camera. Behind him, Perlmutter smiles knowingly, wearing sunglasses at night.

When Trump asked him for help putting a government together, Perlmutter offered to be an outside adviser, according to people familiar with the matter. Having fought for his native Israel in the 1967 war before he moved to the U.S. and became a citizen, Perlmutter chose veterans as his focus.

Perlmutter enlisted the assistance of his friends Sherman and Moskowitz. Moskowitz, 70, specializes in knowing the world’s top medical expert for any ailment and arranging appointments for clients. He has connections at the country’s top medical centers. Sherman, 63, has houses in West Palm Beach and suburban Baltimore and an office in Washington with the consulting firm Alvarez & Marsal. His legal work focuses on financial fraud, white collar investigations and damages disputes. His professional biography lists experience in eight industries, none of them related to health care or veterans.

Moskowitz and Sherman helped Perlmutter convene a council of health care executives on the day of the Trump-Perlmutter photograph, Dec. 28, 2016. Offering more private healthcare to vets was a signature promise of Trump’s campaign, but at that point he hadn’t decided who should lead an effort that would reverse the VA’s longstanding practices.

A new name surfaced in that meeting: David Shulkin, who’d led the VA’s health care division since 2015. Perlmutter then recommended Shulkin to Trump, according to a person familiar with his thinking. (Shulkin did not respond to requests for comment.)

Once nominated, Shulkin flew to Mar-a-Lago in early February 2017 to meet with Perlmutter, Sherman and Moskowitz. In a follow-up email a few days later, Moskowitz elaborated on the terms of their relationship. “We do not need to meet in person monthly, but meet face to face only when necessary,” he wrote. “We will set up phone conference calls at a convenient time.”

Shulkin responded diplomatically. “I know how busy all of you are and having you be there in person, and so present, was truly a gift,” he wrote. “I found the time we spent, the focus that came out of our discussions, and the time we had with the President very meaningful.”

It wasn’t long before the Mar-a-Lago Crowd wore out their welcome with Shulkin. They advised him on how to do his job even though they sometimes seemed to lack a basic understanding of it. Just after their first meeting, Moskowitz emailed Shulkin again to say, “Congratulations i[t] was unanimous.” Shulkin corrected him: “Bruce- this was not the confirmation vote- it was a committee vote- we still need a floor vote.”

Perlmutter, Moskowitz and Sherman acted like board members pounding a CEO to turn around a struggling company, a former administration official said. In email after email, officials sought approval from the trio: for an agenda Shulkin was about to present to Trump for a research effort on suicide prevention and for a plan to recruit experts from academic medical centers. “Everything needs to be run by them,” the first former official said, recalling the process. “They view themselves as making the decisions.”

The Mar-a-Lago Crowd bombarded VA officials with demands, many of them inapt or unhelpful. On phone calls with VA officials, Perlmutter would bark at them to move faster, having no patience for bureaucratic explanations about why something has to be done a certain way or take a certain amount of time, former officials said. He issued orders in a thick, Israeli-accented English that can be hard to understand.

In one instance, Perlmutter alerted Shulkin to what he called “another real-life example of the issues our great veterans are suffering with when trying to work with the VA.” The example came from Karen Donnelly, a real estate agent in Palm Beach who manages the tennis courts in the luxury community where Perlmutter lives. Donnelly’s son was having trouble accessing his military medical records. After a month of dead ends, Donnelly said she saw Perlmutter on the tennis court and, knowing his connection to Trump, asked him for help. Perlmutter told her to email him the story because he’s “trying to straighten things out” at the VA, she recalled. (Donnelly separately touched off a nasty legal dispute between Perlmutter and a neighbor, Canadian businessman Harold Peerenboom, who objected to her management of the tennis courts. In a lawsuit, Peerenboom accused Perlmutter of mounting a vicious hate mail campaign against him, which Perlmutter’s lawyer denied.)

Perlmutter forwarded Donnelly’s email to Shulkin, Moskowitz and Sherman. “I know we are making very good progress, but this is an excellent reminder that we are also still very far away from achieving our goals,” Perlmutter wrote.

Shulkin had to explain that they were looking in the wrong place: Since the problem was with military service records, it lay with the Defense Department, not the VA.

Perlmutter, Moskowitz and Sherman defended their intervention, saying, “These were the types of stories of agency dysfunction and individual suffering that drove us to offer our volunteer experience in the first place — veterans who had been left behind by their government. These individual cases helped raise broader issues for government officials in a position to make changes, sometimes leading to assistance for one veteran, sometimes to broader reforms within the system.”

Right after meeting Shulkin, Moskowitz connected him with his friend Michael Zinner, director of the Miami Cancer Institute and a member of the American College of Surgeons’ board of regents. (Zinner declined to comment.) The conversation led to a plan for the American College of Surgeons to evaluate the surgery programs at several VA hospitals. The plan came very close to a formal announcement and contract, internal emails show, but stalled after Shulkin was fired, according to the organization’s director, David Hoyt.

Besides advocating for friends’ interests, some of the Mar-a-Lago Crowd’s interventions served their own purposes. Starting in February 2017, Perlmutter convened a series of conference calls with executives at Johnson & Johnson, leading to the development of a public awareness campaign about veteran suicide. They planned to promote the campaign by ringing the closing bell at the New York Stock Exchange around the time of Veterans Day.

The event also turned into a promotional opportunity for Perlmutter's company. Executives from Marvel and its parent company, Disney, joined Johnson & Johnson as sponsors of the Veterans Day event at the stock exchange. Shulkin rang the closing bell standing near a preening and flexing Captain America, with Spider-Man waving from the trading pit, and Marvel swag distributed to some of the attendees. "Generally the VA secretary or defense secretary don't shill for companies," the leader of a veterans advocacy group said.

The VA was aware of the ethical questions this event raised because of Shulkin's relationship with Perlmutter. An aide to Shulkin sought ethics advice from the agency's lawyers about the appearance. In an email, the aide noted, "the Secretary is friends with the President of Marvel Comics, Mr. Ike Perlmutter, but he will not be in attendance." The VA redacted the lawyer's answer, and the agency's spokesman would not say whether the ethics official approved Shulkin's participation in the event.

Perlmutter did not answer specific questions about this episode. His joint statement with Moskowitz and Sherman said, "None of us has gained any financial benefit from this volunteer effort, nor was that ever a consideration for us."

Perlmutter also facilitated a series of conference calls with senior executives from Apple. VA officials were excited about working with the company, but it wasn't immediately obvious what they had to collaborate on.

As it turned out, Moskowitz wanted Apple and the VA to develop an app for veterans to find nearby medical services. Who did he bring in to advise them on the project? His son, Aaron, who had built a similar app. The proposal made Apple and VA officials uncomfortable, according to two people familiar with the matter, but Moskowitz's clout kept it alive for months. The VA finally killed the project because Moskowitz was the only one who supported it.

Moskowitz, in the joint statement, defended his son's involvement, calling him a "technical expert" who participated in a single phone call alongside others. "Any development efforts, had they occurred, would not have involved Aaron or any of us. There was no product of Dr. Moskowitz's or Aaron's that was promoted or recommended in any way during the call," the trio said. "Again, none of us, including Aaron, stood to receive any financial benefit from the matters discussed during the conversation — and any claims to the contrary are factually incorrect."

Moskowitz had more success pushing a different pet cause. He has spent years trying to start a national registry for medical devices, allowing patients to be notified of product recalls. Moskowitz set up the Biomedical Research and Education Foundation to encourage medical institutions to keep track of devices for their patients to address what he views as a dangerous hole in oversight across the medical profession. At one point, the foundation built a registry to collect data from doctors and patients. Moskowitz chaired the board, and Perlmutter's wife was also a member. Moskowitz's son earned \$60,000 a year as the executive director, according to tax disclosures.

Moskowitz pushed the VA to pick up where he left off. He joined officials on weekly 7:30 a.m. conference calls in which officials discussed organizing a summit of experts on device registries and making a public commitment to creating one at the VA. In an email to Shulkin, the VA official in charge of the project referred to it as the "Bruce Moskowitz efforts."

When the summit arrived, on June 4, Moskowitz and his son did not attend. It's not clear what role they will have in setting up the VA's registry going forward — their foundation has shut down, according to its website, and Moskowitz's son said he's no longer involved. But in his opening remarks at the summit, Peter O'Rourke, then the acting secretary, offered a special thanks to "Dr. Bruce Moskowitz and Aaron Moskowitz of the Biomedical Research and Education Foundation" as "driving forces" behind it.

Over the course of 2017, there was growing tension within the Trump administration about how much the VA should rely on private medical care. During the campaign, Trump championed letting veterans see any doctor they choose, inside or outside the VA system. But Shulkin warned that such an approach was likely to result in poorer care at a higher cost. His preferred solution was integrating government-run VA care with a network of private providers.

In September 2017, the Mar-a-Lago Crowd weighed in on the side of expanding the use of the private sector. "We think that some of the VA hospitals are delivering some specialty healthcare when they shouldn't and when referrals to private facilities or other VA centers would be a better option," Perlmutter wrote in an email to Shulkin and other officials. "Our solution is to make use of academic medical centers and medical trade groups, both of whom have offered to send review teams to the VA hospitals to help this effort."

In other words, they proposed inviting private health care executives to tell the VA which services they should outsource to private providers like themselves. It was precisely the kind of fox-in-the-henhouse scenario that the VA's defenders had warned against for years. Shulkin delicately tried to hold off Perlmutter's proposal, saying the VA was already developing an in-house method of comparing its services to the private sector.

Shulkin also clashed with the Mar-a-Lago Crowd over how to improve the VA's electronic record-keeping software (the one episode involving the trio that has previously surfaced, in a report by Politico). The contract, with a company called Cerner, would cost more than \$10 billion and take a decade to implement. But Moskowitz had used a different Cerner product and didn't like it. He complained that the software didn't offer voice recognition, even though newer versions of Cerner's product do. For months, the Mar-a-Lago Crowd pressured Shulkin to put the contract through additional vetting.

On Feb. 27, 2018, Shulkin flew to Mar-a-Lago — not to see Trump, who was back in Washington, but to meet with Perlmutter, Moskowitz and Sherman. The trip was supposed to close the deal on the Cerner contract, according to two people familiar with the meeting. By then, Shulkin's stature had been badly diminished by an ethics scandal, and he expected he didn't have much longer in the job, but he wanted to finish the Cerner deal first.

Shulkin brought O'Rourke, an ex-Trump campaign aide who stepped in as chief of staff after the ethics scandal led to the departure of Shulkin's top aide. O'Rourke took the opportunity to ally himself with the Mar-a-Lago Crowd. "It was an honor to meet you all yesterday," he wrote in a follow-up email. "I want to ensure that you have my VA and personal contact information." He then provided his personal cell phone number and email address. (Using personal email to conduct government business can flout federal records laws, as President Trump and his allies relentlessly noted in their attacks on Hillary Clinton during the 2016 campaign.) "Thank you for your support of the President, the VA, and me," O'Rourke wrote. (O'Rourke didn't answer requests for comment.)

Perlmutter welcomed the overture. “I feel confident that you will be a terrific asset moving forward to get things accomplished,” he replied.

The Mar-a-Lago Crowd grew frustrated with Shulkin, feeling like he wasn't listening to them, and Perlmutter came to regret recommending Shulkin to Trump in the first place, according to people familiar with his thinking. That aligned them with political appointees in the VA and the White House who started to view Shulkin as out of step with the president's agenda.

One of these officials, senior adviser Camilo Sandoval, presented himself as Perlmutter's eyes and ears within the agency, two former officials said. For instance, in an email obtained by ProPublica, Sandoval kept tabs on the Apple project and reported back to Moskowitz and Sherman. “I will update the tracker, and please do let me know if this helps answers [sic] questions around Apple's efforts or if additional clarification is required,” he wrote. Sandoval, who didn't answer requests for comment, knew Perlmutter because he worked on the campaign with Trump's son-in-law, Jared Kushner, who is also close with Perlmutter.

In December, White House adviser Jake Leinenkugel sent Sandoval a memo outlining a plan to upend the department's leadership. Leinenkugel would not say who asked him to write the memo. But it was clearly not intended for Sandoval alone, since it refers to him in the third person. Three people familiar with the situation said the memo was sent to Sandoval as a channel to Perlmutter. The spokeswoman for Perlmutter, Sherman and Moskowitz said they didn't know about the memo.

The memo recommended easing Shulkin out and relying on Perlmutter for help replacing him. “Put [Shulkin] on notice to exit after major legislation and key POTUS VA initiatives in place,” the memo said. “Utilize outside team (Ike).” Although several factors contributed to Shulkin's downfall, including the ethics scandal and differences with the White House over legislation on buying private health care, three former officials said it was his friction with the Mar-a-Lago Crowd over the Cerner contract that ultimately did him in.

Perlmutter, Moskowitz and Sherman dispute that contention. “Any decisions of the agency or the president,” they noted in their statement, “as well as the timing of any agency decisions, were independent of our contacts with the VA.”

But it wasn't just Shulkin — all the officials that the Leinenkugel memo singled out for removal are now gone, replaced with allies of Perlmutter, Sherman and Moskowitz. The memo suggested that Sandoval take charge of the Office of Information and Technology, overseeing the implementation of the Cerner contract; he got the job in April. The memo proposed removing Deputy Secretary Tom Bowman; he left in June, and the post hasn't been filled. The memo floated Richard Stone for under secretary for health; he got the job on an acting basis in July. Leinenkugel himself took charge of a commission on mental health (the same topic Moskowitz had emailed O'Rourke about). O'Rourke, having hit it off with the Mar-a-Lago Crowd, became acting secretary in May.

Trump initially nominated White House doctor Ronny Jackson to replace Shulkin, with Pentagon official Robert Wilkie filling in on a temporary basis. On Wilkie's first day at the VA, Sherman was waiting for him in his office, according to a calendar record.

Within a few weeks, Wilkie made a pilgrimage to Mar-a-Lago. He tacked it onto a trip to his native North Carolina, and O'Rourke caught up with him in Palm Beach. They visited a VA

hospital and rehab facility, then headed to Mar-a-Lago to meet with Perlmutter, Moskowitz and Sherman, according to agency records.

The Mar-a-Lago Crowd gave Wilkie and O'Rourke rave reviews. "I am sure that I speak for the group, that both you and Peter astounded all of us on how quickly and accurately you assessed the key problems and more importantly the solutions that will be needed to finally move the VA in the right direction," Moskowitz told Wilkie in a follow-up email.

Perlmutter was similarly thrilled with the new regime. "For the first time in 1½ years we feel everyone is on the same page. Everybody 'gets it,'" he said in an email. "Again, please know we are available and want to help any possible way 24/7."

Wilkie replied that the honor was his. "Thank you again for taking time to see me," he wrote.

Soon after, Jackson's nomination imploded over allegations of misconduct as White House physician. (Jackson denied the allegations, and they're still being investigated.) At that point, Perlmutter's endorsement cleared the way for Trump to nominate Wilkie.

Wilkie, who was sworn in on July 30, now faces a choice between asserting his own authority over the VA or taking cues from the Mar-a-Lago Crowd. Wilkie reportedly wants to sideline O'Rourke and Sandoval and restock the agency leadership with his own people. But people familiar with the situation said the Mar-a-Lago Crowd's allies are pushing back on Wilkie's efforts to rein them in. As his predecessor learned the hard way, anyone who crosses the Mar-a-Lago Crowd does so at his own risk.

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1.4 - U.S. News & World Report (AP): [Report: Madison VA Hospital Care Deficient Before Suicide](#) (7 August, 23.9M uvm; Washington, DC)

MADISON, Wis. (AP) — A new federal report finds that Madison's Veterans Hospital provided deficient care for a patient who killed himself a day after being discharged last year.

The report by the VA Office of the Inspector General found that hospital staff did not hold the man for an additional 72 hours, as they could have. The report also cited problems with discharge planning, follow-up and outpatient pharmacy care.

Wisconsin U.S. Sens. Tammy Baldwin and Ron Johnson requested the review.

The Wisconsin State Journal says the report doesn't name the veteran, but his mother identifies him as 24-year-old Robert Franks-Mess, a 24-year-old Marine veteran from Lake Mills.

In a statement, Madison VA Director John Rohrer says the hospital has started coordinating more with family members and county crisis services before veterans are discharged.

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1.5 - The Chippewa Herald: [Madison VA hospital's care deficient before veteran's death by suicide, report says](#) (7 August, David Wahlberg, 197k uvm; Chippewa Falls, WI)

Madison's Veterans Hospital provided deficient care for a mentally ill patient who killed himself a day after being discharged last year, according to a new federal report.

Staff didn't hold the man for an additional 72 hours, as they could have, and there were problems with discharge planning, follow-up and outpatient pharmacy care, says a report by the VA Office of the Inspector General.

"These deficiencies in care may have set the stage for progressive worsening of this veteran's (mental health) disorder that ultimately was a factor in his death by suicide," says the report, released last week after a review requested by U.S. Sens. Tammy Baldwin, a Democrat, and Ron Johnson, a Republican.

Robert Franks-Mess, a 24-year-old Marine veteran from Lake Mills, died by suicide on Feb. 18, 2017, after being treated at the Madison VA for depression, post-traumatic stress disorder and traumatic brain injury, said his sister, Dawn Franks-Mess, of Madison.

The federal report doesn't name Robert Franks-Mess, but he is the subject of the report, said his mother, Kathleen Franks, of Madison. She and Dawn Franks-Mess said they were interviewed by OIG investigators as part of the review, and the details of his treatment and death match those in the report.

Robert Franks-Mess, who served in the Marines from 2010 to 2013, was diagnosed with mental illness in 2014, his sister and mother said. As his symptoms worsened, he was hospitalized twice at the Madison VA in 2017.

On Feb. 17 of that year, after being in the hospital two days, he was discharged after a psychiatrist told Kathleen Franks to remove guns from their home, which she had already done, Franks told the State Journal. The next day, he used a gun obtained elsewhere to take his life.

"They definitely need to improve their care," Franks said. "Hopefully we can get the awareness out there, that there needs to be improvements within all of the VA facilities around the country."

John Rohrer, director of the Madison VA, said in a statement that the hospital has started coordinating more with family members and county crisis services before veterans are discharged.

"Unfortunately, in mental health and in all medicine, no set of policies or process will succeed in preventing every negative outcome," Rohrer said. "While we do not agree with every aspect of the OIG report, we continue aggressively to seek ways to improve our care."

The report says a psychiatrist considered holding the veteran involuntarily for 72 hours to protect him from self-harm, but thought he might react negatively and said he agreed to return for clinic visits. The doctor also believed the patient's main reason for coming to the hospital was "manipulative," saying he was trying to get a wrist surgery scheduled more quickly.

Franks said her son was withdrawn and feeling helpless, and clearly having a mental health crisis. When a nurse told her he was being discharged, she said she couldn't believe it.

"I said, 'Are you kidding me?' Do you not see what kind of state he's in?" Franks said. "I don't feel like I had a choice to talk with them and convince them that he needed to stay."

Dawn Franks-Mess said that other than keeping guns out of the home, there was little discussion about what the family could do to keep her brother safe. "I don't feel like we were given tools to help him," she said.

During the hospital stay before the suicide, the report said, the patient reported continued suicidal thoughts and didn't appear to be responding to treatment. "Although in hindsight, it would have been better not to discharge" him, the psychiatrist "had a clear and medically acceptable rationale for doing so," the report said.

Discharge planning and follow-up care were inadequate, the report said. Psychiatric clinical pharmacists didn't properly assess the patient's symptoms, evaluate his response to medication or monitor him for mood disorder and suicidal thoughts in the months before the hospital stay, the report said.

Similar deficiencies among psychiatric clinical pharmacists were found for another patient who died by suicide 13 months earlier, the report said.

The report also said the pharmacists acted outside of the scope of practice in changing diagnoses and providing psychotherapy.

In addition, inspectors cited "ethically questionable enrollment in a research study," saying the patient participated in a study but may not have been able to consent voluntarily, thinking participation was required as part of treatment.

Dawn Franks-Mess said the study involved taking lithium or a placebo, and the family later learned her brother was on the fake drug.

Robert Franks-Mess, who liked hunting, fishing and working on cars, had been outgoing and fun-loving before becoming withdrawn, his sister and mother said.

Shortly before his death, he started to help Lake Mills renovate its skateboard park, which he used growing up. That is where he was found dead, Kathleen Franks said.

"How many more families need to go through this before changes are truly made?" she said.

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2. Greater Choice for Veterans

2.1 - CNBC: [Three civilians from Mar-a-Lago are reportedly making decisions for the VA](#)
(7 August, Yen Nee Lee, 26.1M uvm; Englewood Cliffs, NJ)

An "informal council" of three people who have neither served in the U.S. military nor hold government positions was found to exert "sweeping influence" on policies concerning America's military veterans, ProPublica reported on Tuesday.

The three are Marvel Entertainment Chairman Isaac "Ike" Perlmutter, a Palm Beach doctor named Bruce Moskowitz and lawyer Marc Sherman, according to ProPublica. The report said it

was based on "hundreds of documents obtained through the Freedom of Information Act and interviews with former administration officials."

All three men are members of Mar-a-Lago, U.S. President Donald Trump's private club in Palm Beach, Florida, according to the report. The trio spoke with officials from the U.S. Department of Veterans Affairs daily and reviewed "all manner of policy and personnel decisions," ProPublica said.

Perlmutter also talks to Trump regularly on the phone and is the first person the president calls on issues concerning veterans, the news outlet reported.

The White House, the VA, Marvel Entertainment and Sherman didn't immediately reply to CNBC's emails seeking comment. CNBC couldn't reach Moskowitz for comment through a publicly listed phone number.

Perlmutter, Moskowitz and Sherman told ProPublica — through a crisis-communication consultant — that they offered help and advice on a voluntary basis. They insisted they have no authority over the department's decisions, the report said.

White House spokeswoman Lindsay Walters told ProPublica the three "have no direct influence over the Department of Veterans Affairs," while VA spokesman Curt Cashour said "a broad range of input from individuals both inside and outside VA has helped us immensely over the last year and a half."

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2.2 - The Hill: [Mar-a-Lago insiders provided input on VA policy, personnel decisions: report](#) (7 August, Brett Samuels, 11.8M uvm; Washington, DC)

A trio of high-profile individuals with ties to President Trump's Mar-a-Lago golf club provided input and directives to staff at the Department of Veterans' Affairs (VA), despite never serving in government or the military.

ProPublica reported Tuesday that Marvel Entertainment chairman Ike Perlmutter, Palm Beach doctor Bruce Moskowitz and attorney Marc Sherman communicated daily with VA officials about personnel and policy decisions.

The news outlet obtained hundreds of documents that showed the three men suggested new programs and met with senior VA officials in Florida to advise them on the department's agenda.

ProPublica cited an instance where former VA Secretary David Shulkin clashed with Moskowitz over an overhaul of the agency's records system. Politico previously reported that Moskowitz objected to the project because he disliked the software involved. He later joined conference calls on the subject with White House approval.

In another example, Moskowitz urged the VA to start a national registry for medical devices, a cause he had championed for years, ProPublica reported. He joined officials on weekly conference calls to discuss the matter.

ProPublica cited an instance where Perlmutter wrote to Shulkin urging him to consider using private medical centers and trade groups to advise the VA on which resources to outsource.

Perlmutter, Moskowitz and Sherman issued a statement to ProPublica saying they offered their help "on a voluntary basis," adding that they "did not make or implement any type of policy... or direct government officials to take any actions."

White House spokeswoman Lindsay Walters told the news outlet that the three men "have no direct influence over the Department of Veterans Affairs."

The VA has been a focus of President Trump's, as he has repeatedly promised to deliver improved care for veterans.

However, the agency has already undergone multiple leadership changes during the Trump administration and been a source of reported dysfunction.

Shulkin was ousted earlier this year amid an investigation into ethical misconduct. He and Trump reportedly clashed over the privatization of the VA. During his tenure, he spoke out dealing with staffers who defied his leadership.

Robert Wilkie was confirmed late last month to serve as the new secretary of the agency after Trump's initial replacement pick, Ronny Jackson, withdrew amid scrutiny over alleged workplace misconduct.

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3. Modernize Our System

3.1 - Stars and Stripes: [We can give GIs seamless, lifetime medical records](#) (7 August, Rep. Jim Banks (R-Ind.), 1.5M uvm; Washington, DC)

When our servicemembers wear the uniform, they make a commitment to serve our country. In return, our country makes a commitment to them: to take care of our heroes when they come home.

This Congress has been the most productive in decades in delivering results for our veterans. We've sent bipartisan legislation to President Donald Trump's desk that brings accountability to the Department of Veterans Affairs, increases transparency in the timeliness and quality of care, and streamlines the broken appeals process for disability claims — and passed the largest expansion of GI Bill benefits since the original GI Bill was signed into law. The House has passed more than 70 veterans bills and 26 of those have been signed by the president.

Although we're delivering on our promises to our nation's veterans, Congress has an important oversight role to ensure the VA stays on track.

VA health care relies on an electronic health record, or EHR, system that, like so many other government IT systems, is falling behind the state of the art. While the current EHR was groundbreaking in the 1980s and its ability to share medical records among different VA hospitals was impressive, today it is increasingly starved of new capabilities. Its operations and

maintenance costs are \$1 billion per year and climbing, and its ability to communicate with the Department of Defense's system is far from seamless. When servicemembers become veterans their medical records still do not automatically follow them into the VA. Similarly, when the department refers veterans to private providers in their communities, far too often the only way to transfer records is by fax.

Outside experts have been recommending for years that the VA and the DOD implement the same commercial EHR system. In May, the VA began the largest EHR modernization program in the country and signed one of the largest IT contracts in the federal government — following the DOD, which did so in 2013. This multibillion-dollar, 10-year effort, if properly implemented, will modernize not just the VA's EHR system, but the way health care is delivered, making its quality more consistent around the country. It will finally achieve the decades-old goal of a seamless, lifetime health record from enlistment to old age.

The key caveat is this transition must be managed properly. The VA has a long and troubling history of IT mismanagement, and even under the best of conditions in the private sector EHR transitions are usually bumpy.

The EHR modernization has huge potential to be disruptive, and its failure would be catastrophic to both veterans and taxpayers, which is why Congress must exercise extraordinary oversight. That's why last month, the House Committee on Veterans' Affairs created a new subcommittee on technology modernization dedicated to the task.

I'm pleased to announce that the subcommittee will hold our first hearing on Sept. 13. The focus of this hearing will be on the role of the Interagency Program Office. The IPO was created by Congress to act as the single point of accountability for the DOD and the VA to implement a fully interoperable electronic health record system. Ten years later, we're still discussing ways to achieve interoperability, so this development has been anything but rapid. While the IPO can and should be a powerful force for good management, it's clear it is not being utilized to its full potential. We must ensure the IPO has the authority to carry out the mission Congress gave it. Close collaboration between the DOD and the VA is absolutely essential in order to achieve a seamless, lifetime medical record, and the IPO is the best forum to ensure that collaboration.

I was honored to be chosen as chairman of this important subcommittee, and I commit to veterans and taxpayers to ask the hard questions. Far too often Congress only finds out a government program is failing when it has already become a crisis. I am determined to do all I can to make sure that is not the case; I pledge to monitor this program every step of the way. Furthermore, Congress and the VA must remain focused on the actual needs of veterans and the dedicated VA employees who care for them. EHR modernization for the sake of EHR modernization is not good enough.

Finally, partisanship has no place in this issue, and it would be a shame to allow it to creep it into the discussion. The VA's EHR modernization will span multiple administrations and Congresses, as the DOD's already has. The House Committee on Veterans' Affairs has distinguished itself for constructive bipartisanship, and I am proud to continue this tradition.

Rep. Jim Banks, an Indiana Republican, is chairman of the House Committee on Veterans' Affairs subcommittee on technology modernization.

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3.2 - WBTV (CBS-3): [Salisbury VA to open new clinical laboratory and ICU](#) (7 August, David Whisenant, 319k uvm; Charlotte, NC)

SALISBURY, NC - A special ribbon cutting will be held on Wednesday for the new clinical lab and ICU at the W.G. "Bill" Hefner Veterans Administration Medical center in Salisbury.

The new Salisbury VAMC clinical laboratory is a full-service lab that supports the inpatient hospital, the operating room, outpatient clinics, oncology clinic, dialysis and two free standing Health Care Centers.

The new facility will support a population of nearly 89,000 veterans, according to the VA.

The ICU unit is increased from 5 beds to 10 beds with private rooms.

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3.3 - WJCT (NPR-89.9): [Outpatient Health Clinic For Veterans Will Open In Orange Park](#) (7 August, Cyd Hoskinson, 54k uvm; Jacksonville, FL)

Military veterans in Clay County are getting a new Veterans Administration outpatient health clinic.

76-year-old Gary Newman started the Clay County chapter of the Vietnam Veterans of America. He said right now, the thousands of veterans who live in the area have to go to the VA clinic in Jacksonville for routine health care.

"Most of us World War II and Vietnam veterans, Korean veterans, we're at an age where travel is pretty hard for us sometimes," said Newman.

Newman said many Vietnam vets have chronic heart and respiratory conditions brought on by their exposure to Agent Orange, a chemical that was dropped from airplanes.

"There were other issues, too. There were burn pits where they burned human waste in these big barrels. And the smoke—many of the veterans were exposed to that," Newman said.

Newman's organization worked with Northeast Florida Congressman Ted Yoho to convince VA officials that the new clinic in Orange Park is needed.

The VA is renovating a two story building on College Drive. It's expected to open in 2020.

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3.4 - VC Daily: [Military Telemedicine Extends Its Reach to Teletherapy for PTSD](#) (7 August, Charlotte T., 2k uvd)

Post Traumatic Stress Disorder is like a terrible echo of life-threatening events from the past. Its sufferers—and there are thousands of them across military and civilian life alike—can become haunted by memories of moments when they or their loved ones were faced with grave danger.

It can leave them unable to sleep, feeling detached or isolated from the world around them, easily startled or irritated, and, in some cases, subject to intense flashbacks that make the sufferer feel like the event is happening again.

Despite those horrors, PTSD, as it is commonly known, is treatable. One of the most successful treatments is based around talk therapy, or psychotherapy, which relies on regular, guided conversation.

In an effort to make those conversations more accessible to veterans, one former-soldier-turned-psychologist is incorporating video conferencing into PTSD treatment. His use of teletherapy for PTSD could pave the way for sufferers to receive treatment without leaving their homes and improve early detection of the disorder.

Teletherapy for PTSD

The veteran in question is Blake Schroedter, whose 17 years in the military included tours in Afghanistan and Iraq. Now, he is the head clinical psychologist of a new

program at Rush University Chicago called Road Home aimed at helping veterans cope with the symptoms of PTSD and other mental health issues.

Dr. Schroedter started the program in part because of his own difficulties transitioning back to civilian life after years of service. He recently told the Shelbyville Daily Union that veterans need to be given time to decompress and process their combat experiences once they return home.

To aid that process, the Road Home program offers an intensive trauma program every month. Dr. Schroedter's group invites 12 veterans from all over the country to attend and treats and houses them at no cost.

Importantly, the initial contact between the Rush team and potential patients is over video conference. In Dr. Schroeder's own words, video helps break down barriers that would otherwise prevent veterans from seeking help and saves both time and money.

Unfortunately, due to legal telemedicine restrictions, the program itself cannot be conducted over video conference from outside its home state, but there is hope that could change.

Veterans' Affairs Video Conferencing

Over the course of an hour-long, face-to-face video conference, the Rush University team can assess a potential patient's mental health and determine their suitability for the Road Home program.

That efficient way of bringing together a remotely located expert and a person in need is possible due to video conferencing's ability to recreate the in-person experience over a distance. Scientific studies in other areas of medicine have proven that remote treatment over video can be as effective as an in-person visit—VC Daily has previously highlighted studies into remote treatment for addiction, anxiety, and phobias.

The success of those studies makes it a greater shame that the Road Home program can't currently be made available outside of Illinois.

If it were run under the banner of the Department of Veterans' Affairs, however, it would be open to all. The Department's public status grants it an exemption, and it has been a strong supporter of telemedicine—in 2016 the VA spent \$1.2 billion on telemedicine research and delivery.

Perhaps Dr. Schroedter's combined work in teletherapy assessment and the Road Home project itself could encourage the VA to follow suit with its own version. And, seeing as PTSD also affects the civilian population, his work could be incorporated into existing commercially available teletherapy sites.

Online Video Therapy Anonymity

The chief asset that video conferencing provides the medical field is accessibility. That's true in both a physical sense—people in remote areas need only a webcam and a laptop to potentially reach expert medical opinions the world over—and in an emotional sense. The ability to seek help from the privacy of your own home, and to do so at a time that fits your statistics on civilian PTSD lifestyle, offers a degree of anonymity that a trip the local clinic can't provide.

Given that most cases of PTSD in the civilian world stem from childhood trauma and deeply personal events such as sexual assault, sufferers may be more open to seeking help if they can do so on their own terms.

Dr. Schroedter is already assessing people online, and web-based counseling services such as TalkSpace offer wholly virtual therapy that builds from text to face-to-face meetings.

We are still learning how the digital communication technologies of today can best be deployed in the healthcare field, but their core function of bringing people together over time and distance offers a unique access point to deeply sensitive issues.

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4. [Focus Resources More Efficiently](#)

4.1 - Stars and Stripes: [VA secretary to announce new leader for DC hospital](#) (7 August, Nikki Wentling, 1.5M uvm; Washington, DC)

WASHINGTON — The Department of Veterans Affairs secretary plans to announce a new, permanent leader for the Washington veterans hospital in the coming weeks after conditions at the facility were reported last month to have deteriorated to a critical level.

VA Secretary Robert Wilkie, who's been on the job for one week, visited the Washington DC VA Medical Center on Monday to meet with hospital leaders. In a statement after his visit, the VA announced it found a new leader for the facility who will begin work "in the near future."

In July, a senior VA health official warned the hospital's administration that they were under review because of deteriorating conditions there during the first half of 2018. The hospital was found not to be improving fast enough, despite VA executives intervening more than a year ago.

The Washington hospital, located in northwest Washington just a few miles from VA headquarters, has been under scrutiny since April 2017, when Inspector General Michael Missal warned VA officials that veterans were being put at unnecessary risk because of supply shortages. The warning prompted then-VA Secretary David Shulkin to fire the hospital director, Brian Hawkins.

Since then, the hospital has been led by two temporary directors, retired Army Col. Larry Connell and Adam Robinson, director of the VA Maryland Health Care System.

Connell, who previously worked on President Donald Trump's transition team and as an adviser to Shulkin, led the Washington facility for one year. He was reassigned in April amid an investigation into whether his appointment to the position broke federal protocols.

Robinson was assigned to lead the Washington hospital for 120 days, which ends this month. He will return to his position in Maryland, the VA said. Hospital Chief of Staff Charles Faselis will take over for two weeks until the permanent director steps into the job.

The VA did not give any further details Tuesday about when the new hospital chief would be named.

Last week, an anonymous group of employees at the Washington hospital sent a letter to Wilkie and other top VA officials, urging them to take action to improve conditions there.

"We ask you, our respected leaders, to stop this cover up and incompetence, to really care and live up to America's promise to its heroes," they wrote. "Enough is enough."

During its investigation, the Office of Inspector General discovered a culture of complacency at the Washington hospital had allowed widespread failures to persist for years.

Since the results of the investigation were released in the spring, inspection reports from the Food and Drug Administration and the VA's National Program Office for Sterile Processing have revealed ongoing problems. The reports, obtained by Stars and Stripes, detailed instances of dirty syringe bottles, unsanitary conditions, rooms in disarray and staff and supply shortages that led to canceled procedures.

On Monday, the VA said the hospital had addressed six of 25 recommendations that the inspector general issued for improving the facility. Wilkie said there had been "substantial improvements" and that hospital leaders "have a strong plan ahead for even more progress in coming weeks."

"We had a good visit today, and I appreciated hearing from facility and regional leadership on the important work that has been done to address the inspector general's concerns, as well as plans for resolving all its remaining recommendations," Wilkie said in a statement.

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4.2 - WFED (AM-1500, Audio): [VA's former acting CIO reflects on his tenure](#) (7 August, Freshta Mohammad and Sean Kelley, 854k uvm; Washington, DC)

This Trump Administration has seen a great deal of turnover in career senior executives. The Veteran Affairs Department has definitely seen its share. For this month's show, Cyber Chat's host Sean Kelley sat down with a reflective Scott Blackburn. Blackburn served in many capacities while at the VA, including executive in charge of Secretary Robert McDonald's MyVA Initiative, acting deputy secretary of VA and acting CIO.

Blackburn graduated from both MIT and Harvard and is an Army Veteran and a partner at McKinsey. He comes from a family of veterans and he is a disabled veteran, himself. He says he chose to work at VA because he "was called to serve."

Blackburn's leadership ushered in a great deal of progress in Information Security. He credits the leadership of the Dom Cussatt, VA's chief information security officer (CISO) and the Enterprise Cyber Security Plan as some key pieces of the success.

Blackburn said VA's cyber program is robust. "The past year, they handled 220 million intrusion attempts, 50 million blocked or contained cases of malware, and 366 million suspicious emails that have come into the system to name a few." He said sustainment is the key to having the Agencies Material Weakness removed.

Blackburn said it's difficult to attract the highest quality CIOs and CISOs because the federal government won't offer the highest salaries. But it will never happen without an overall federal strategy to attract but also maintain IT leaders.

"[Leadership drain] happens in the private sector, but I have never seen it like this ... it is a reality of government," Blackburn said. "Any leader coming in can't sit back for six months. You have to get up to speed very quickly. You have to trust the career employees. Where do you want to make change that really matters?"

Blackburn said he is "most proud of always putting the veterans first. VA is now more veteran-centric than it was four years ago. It is more principle based rather than rule based."

Blackburn's message for the folks who still work at the VA: "Keep pushing."

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4.3 - Johnson City Press: [Mountain Home National Cemetery director resigns amid health crisis](#) (7 August, Becky Campbell, 194k uvm; Johnson City, TN)

When Mountain Home National Cemetery Director Jeny Walker and her staff accepted a national award for excellence last week, it was a professional high for her and the team.

It was the second of three awards given by the National Cemetery Administration in her three years directing the cemetery. Walker oversaw a massive expansion project and established an outreach program more inclusive of the community.

Mountain Home National Cemetery has been in the news over and over under Walker's tenure.

Last week's award was given during a ceremony to announce a new project at the cemetery — a corresponding metal arch on the corner of the cemetery across from the Washington

County/Johnson City Veterans Memorial that will say “Where Heroes Rest.” The arch at the memorial says “Freedom Is Not Free.”

But less than 24 hours after that announcement and award, life came at Walker like a brick wall. She thought she was having a heart attack and called 911 around 4 a.m. on July 31.

It wasn't a heart attack.

Instead, what came out of a doctor's mouth after hours of tests was that she had a very aggressive form of cancer that had already metastasized in three places.

Walker, 61, had survived lymphoma 15 years ago through the traditional methods of treating cancer, and she said she has no desire to go through that fight again because of the side effects of chemo.

When the doctor said it was terminal, Walker made a big decision. Instead of spending her last days — the doctor gave her three months because of how aggressive the cancer is — suffering through chemo or radiation, Walker decided to plan a trip and mark a few things off her bucket list.

Yes, she is still coming to terms with her diagnosis, and she's traveling the rollercoaster of emotions that comes with a fatal diagnosis. But her intent is clear — she'll do anything within her power to not leave this world with things unsaid or undone.

Pretty quickly after the diagnosis, Walker resigned her position and left the helm to a recently hired assistant director. She set about calling close friends with the news, then called a staff meeting last Friday to tell her employees what was going on. Needless to say, everyone was shocked.

Walker, too, feels the shock, but has come to terms with the diagnosis.

“I'm pretty resolved,” to the diagnosis, Walker said on Tuesday. “It is what it is. I could sit in bed and be bitter and wait to die. I'm not sitting and waiting on it. I want to go as long as I can, as far as I can.”

And if she's no longer able to go, Walker said, she'll return to her hometown of Raleigh, North Carolina, for whatever time she has left. Walker said she's been amazed at the outpouring of support from the Johnson City community as well as areas where she's previously lived.

“So many people have expressed love,” she said. “I want to say ‘thank you’ to the community. This community has opened their arms and hearts to me. The veterans have embraced me, the organizations have embraced me as well as the cemetery. I've made some of the closest friends I've had in my life. It's been fabulous, probably the best three years of my life.”

Walker said the past 15 years were a “gift” she'd had and she's made the most of it. During her first round with cancer, Walker said she did a lot of personal growth and gained a different perspective on life.

“Some people would call it borrowed time,” she said. “I've had a very blessed life ... I learned to guide my life with an open heart, to always be kind and to always be honest.”

Sure, she's angry, but not about what most might think. She's angry "I had to leave a job I love."

Walker said she appreciates the National Cemetery Administration for "letting me do it my way, for giving me a great opportunity. I've helped a lot of people and a lot of veterans. That's the reward."

One thing Walker said she tells her grandchildren is "learn something new every day. You have to look for that message every day."

Walker takes that message to heart and said she's still learning and growing as a person — and she'll continue following that path until her journey ends.

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4.4 - Williamson Daily News: [Hershel 'Woody' Williams VA, local professionals discuss vets' mental health](#) (7 August, Bishop Nash, 24k uvm; Williamson, WV)

HUNTINGTON - The Hershel "Woody" Williams VA Medical Center in Huntington hosted its sixth annual mental health summit Friday afternoon, meeting jointly with outside mental health agencies toward serving their common goal in creating better lives and conditions for the area's military veterans.

The summit brought under one roof voices from across the region's mental health sector, such as the Prestera Center and Marshall University, to coordinate their often overlapping and interwoven efforts, discuss what may or may not be working, identify any gaps in service, and to hear first-hand feedback from veterans themselves.

"I think we're doing great mental health care here in Huntington, but you can always do better," said Chuck Weinberg, VA local recovery coordinator. "So we've giving the message to veterans that we're on an improvement program too."

"The mental health summit affords partners the opportunity to learn more about the experiences and behavioral health needs of area veterans and their families," added Kim Miller, Prestera Center director of development. "It's a great opportunity to network and share information about our programs and services."

Veterans are not beholden to seeking care from the VA system, making it important for outside mental health providers to understand and stay up-to-date on the needs of the veterans they mutually serve, said Kim White, assistant professor of social work at Marshall University and U.S. Navy veteran.

"It's one thing to offer services, but it's very important for a service provider to understand veteran culture as sort of a subculture to our larger culture," White said.

Post-traumatic stress disorder has long been the most talked about and troubling mental health issue affecting veterans since the Vietnam War, but White pointed out current issues surround problems in fully acclimating a veteran back into civilian life.

Regionally, these issues primary to veterans often intersect with existing widespread mental health problems in Appalachia, such as addiction and a poor economy.

"We're in an economic situation that isn't always conducive to immediate employment when you (as a veteran) may be used to being in charge, being a leader and being paid what you're worth," White said. "To have to come back into civilian society, it can be very difficult for people and the heads of households to not be able to find a job quickly when they return. And that can be devastating for a person's identity."

The Hershel "Woody" Williams VA Medical Center serves nearly 30,000 veterans in 10 counties in West Virginia, 12 counties in eastern Kentucky, and two counties in southern Ohio from its 80-bed facility off Spring Valley Drive.

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5. [Improve Timeliness of Service](#)

5.1 - MLive: [Wurtsmith base water may have caused veteran cancers](#) (7 August, Garret Ellison, 10.9M uvm; Ann Arbor, MI)

OSCODA, MI -- Drinking water laced with high levels of poisonous chemicals may be to blame for cancer and other chronic disease among veterans and families who lived at Wurtsmith Air Force Base in northern Michigan, according to a new federal health report draft.

That conclusion, reached in July by the Agency for Toxic Substances and Disease Registry (ATSDR), sets the table for Congress to consider legislation that would force the Department of Veterans Affairs to extend health benefits to base veterans without making them somehow prove their illnesses are linked to chemical exposure.

No bill has yet been introduced, although U.S. Rep. Dan Kildee, D-Flint, says he's working on legislation similar to that which forced the VA to cover similar health claims at Camp Lejeune in North Carolina, where drinking water was contaminated with chlorinated solvents.

Those same chemicals, notably benzene and trichloroethylene (TCE), were documented at extremely high levels in Wurtsmith water when the former B-52 bomber base was active.

"We must do more to help veterans exposed to harmful chemicals during their military service," said Kildee in a statement. "It is troubling that veterans may have a higher risk of cancer and other health effects if they were exposed to TCE and other harmful chemicals."

"This report's findings demonstrate that all levels of government must do more to help veterans get the health care they need," he said.

The ATSDR report concludes that people who consumed or had skin contact with Wurtsmith water "may be at an increased risk for cancer." The finding is based on new lower risk levels for exposure to TCE and benzene than were used in a 17-year-old assessment, which called it "unknown" whether past contamination posed a hazard.

The updated report conclusions are based largely on long-term exposure over a period of years, but note that, for pregnant mothers, even short term exposure to TCE during the first trimester could have resulted in heart birth defects in their baby children.

The base opened in 1923 and closed in 1993. TCE was found in Wurtsmith water in 1977, but the report notes the drinking water wells on base "could have (been) contaminated for many years before the initial discovery." All wells were shut down by 1997, when the base switched to a municipal system which draws from Lake Huron.

The Air Force installed a groundwater treatment system to cleanup TCE in the early 1980s after being sued by the state of Michigan.

The ATSDR looked at past levels of TCE and benzene, but did not consider exposure to per- and polyfluoroalkyl substances, or PFAS, contamination caused by base firefighters using chemical-based firefighting foam. The chemicals were found in Wurtsmith groundwater in 1998 but did not get significant attention until the state issued a local advisory for well owners in 2016.

According to the ATSDR, TCE levels in a well at the corner of Arrow Street and N. Skeel Avenue were as high as 5,173 parts-per-billion (ppb) during a 1977 test -- more than 1,000 times the EPA's current limit of 5-ppb for TCE in drinking water. TCE in another well on Jet Street near the present day Wurtsmith museum was 1,739-ppb.

"When it's all said and done, I think the exposures to TCE and vinyl chloride up there are going to be higher than Camp Lejeune," said Jerry Ensminger, a veteran who spearheaded the effort to get health benefits at Lejeune after the death of his daughter, Janey.

Ensminger began pushing for exposure-related benefits in 1997. In 2012, Congress passed a law named after his daughter that forced the VA to automatically presume diseases like adult leukemia, bladder, kidney and liver cancer, Non-Hodgkin's lymphoma and Parkinson's disease were caused by base water exposure.

As with Wurtsmith, the initial ATSDR public health assessment of Lejeune contamination lowballed the exposure concern. It was eventually updated in 2009. The Veterans & Civilians Clean Water Alliance group of Wurtsmith veterans and families pushed the ATSDR to update the base report last year. Ensminger likened the hurdle to awaiting formal diagnosis of an obvious problem.

"You know your house is on fire. You see the fire and the smoke, but your house is not 'officially' on fire until the fire department gets there and says so," he said. "That's the same thing with these contamination sites and toxic exposures. You need an official to come in and say, 'yea, they were exposed at harmful levels.'"

"Now, somebody has to go to Capitol Hill."

Kildee said he's working both sides of the aisle for bipartisan support on a Wurtsmith bill, but did not offer a timeline or specifics. Congress has been appropriating money to address contamination at military bases recently, but those funds are specifically tied to PFAS exposure.

The cost of extending presumptive benefits to Wurtsmith veterans could be high. The VA estimated last year it will pay \$2.2 billion by 2022 to Lejeune veterans under the new program, and that doesn't include coverage for certain civilians and family members.

Wurtsmith veteran Scott Flannery of Manassas, Va., lived on base in the late 1970s. He's considered completely and permanently disabled after a 32-year military career.

Flannery, who helped push for the health assessment update, said he's glad that everything has "come to fruition" but also hopes the federal government will "do the right thing with the issues affecting them now with the firefighting foam."

"I'm hoping all the best for all those who could have been potentially affected," Flannery said.

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5.2 - Billings Gazette: [Veteran finds pain relief without pills through rehab and therapy with Billings naturopaths](#) (7 August, Susan Olp, 854k uvm; Billings, MT)

Casey Jourdan, a veteran of the Iraq War, is no stranger to pain.

She spent six years in the Montana National Guard, and was deployed in Iraq for a year, starting in 2003. She primarily worked as a turret gunner doing convoy security.

On April 13, 2004, she was wounded in a roadside bombing. It left her with permanent joint and nerve damage in her left shoulder, elbow and wrist.

An X-ray didn't reveal the separation in her shoulder, which was discovered later. And since Jourdan didn't sustain any injuries from shrapnel and no bleeding, she decided to stay with her company.

The X-ray also couldn't reveal that Jourdan had developed PTSD and a traumatic brain injury. When she came home to Montana and enrolled at Montana State University, the combination of the two led her to drop out.

She sought therapy for her PTSD, and the depression and anxiety that came with it. But the TBI caused visual spatial damage, which impaired her ability to read, a connection Jourdan didn't figure out until five years after she was discharged.

It forced her to re-learn that most basic skill, and she still deals with other TBI-related issues.

"I have short-term memory issues, and I had to learn to read again," Jourdan said. "From a near-photographic memory, now I can't tell you what I ate for breakfast today."

She spent much of her time seeing doctors to deal with her medical issues. Through the VA medical system she got shoulder surgery to try and regain some feeling back in her hands.

She praises the level of care she got, but her treatment was spread among different physicians.

"I saw one doc for shoulder stuff and his answer was either pain pills or ibuprofen and therapy," Jourdan said. "I had another doc for occupational therapy for TBI and meds for anxiety. And a third doc prescribed antidepressants and mental health therapy for PTSD."

Eventually she moved to Billings, where she earned a bachelor's degree in political science and a master's degree in mental health counseling. Jourdan is self-employed and does CrossFit coaching.

She went to Yellowstone Naturopathic Clinic as an alternative to pills, which she avoided, to find relief for her chronic shoulder pain. Chiropractic care and massage therapy decreased the pain and rehab helped her get back in the gym, to get more active.

“I went through weeks of chiropractic care and massage therapy as part of dealing with my chronic shoulder pain, and it made a big difference for me,” Jourdan said. “It really got my pain into a much more manageable area.”

Now, she’d like to see more veterans try the naturopathic route. And if the care isn’t covered by the Veteran’s Administration, then a foundation created in honor Paul Gardner, a vet who accidentally overdosed on pain medication, will pay for the treatment.

Jourdan knew Gardner, who was a good friend and helped her come out of her shell when she moved to Billings. Like Jourdan, Gardner had a TBI and some nerve damage.

“His injuries were a bit worse than mine, but he was working hard, getting physically and emotionally better and trying to really put his life back together,” she said.

Through his death, the foundation was born. Jourdan, a member of the board, and the others involved with the nonprofit, hope other veterans, with the foundation’s help, will find answers to their pain so they don’t suffer the same fate.

“We want to show that if we take a more holistic approach to all these problems, we will get a better-long term outcome,” she said.

Developing the program

The treatments are part of a pain clinic developed by Dr. Margaret Beeson, naturopath and founder/owner of the Yellowstone Naturopathic Clinic, and Patricia Holl, a chiropractor at the clinic. The concept for the Yellowstone Pain Relief Center began before the focus turned to helping wounded veterans, Beeson said.

Many of the treatments already were available, including chiropractic care, regenerative injection therapies to spur ligament healing, acupuncture and therapeutic massage, among others. The idea was to bundle them to help patients who relied on drugs, including opioids, for pain relief.

“We decided we were going to take people on paid meds struggling to get off them,” she said. “We’d review their cases and come up with a four- to six-week treatment program to show them they could reduce their meds.”

In the middle of planning for the new center in March 2011, Beeson met with George Blackard, who worked with the clinic on IT issues. Blackard, who also is commander of American Legion Andrew Pearson Post 117, told Beeson that a young vet — Paul Gardner — had died the night before of an accidental overdose.

Beeson and Holl thought the pain clinic might be a good fit for veterans like Gardner. They worked with Blackard and Gardner’s family to create a foundation to help fund treatment for vets.

The VA referred to the clinic quite a bit, and at that time it was paying for chiropractic and massage and some acupuncture, Beeson said. But it wouldn't cover the injection therapy, and now doesn't cover some of the other treatments.

To help vets seeking non-narcotic options for rehabilitation and pain relief, the Paul Gardner Veterans Pain Relief Foundation was formed.

"Then we decided 'let's do a study to see if we can show these things can help vets get off their drugs,'" Beeson said.

The goal of the study was to evaluate if a multi-treatment approach to healing low back pain could indeed reduce pain, decrease pain medication use and increase quality of life for vets enrolled in the study. It was open to participants ages 20-40 who had been deployed in the Iraq or Afghanistan wars.

They had to meet certain qualifications and agree to take part in all the screenings and treatments. To date, seven vets have taken part in the study, and Beeson and Holl hope that number will continue to grow.

Regardless of whether vets qualify for the study, the foundation will cover the costs of their treatment at the clinic.

"We told vets 'we will serve you no matter what,'" Beeson said. "If they don't fit in the study, we will make sure they get the treatment they need."

Holl, who oversees the vets' therapy, sees the many challenges they face, calling them a fragile population.

"They come here and have other crises because they have injuries and a dependency on opioids," she said. "They can't keep jobs, their family breaks down and it cascades in a downward spiral. That's what we're trying to help."

For vets who are willing to commit themselves to completing the treatment, Holl has seen a positive result.

"I've gotten letters from some of the attendees thanking us for helping them get their lives back," she said. "The patient who walks in the door on day one and the one who walks out the door at the end is different. It's striking."

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5.3 - WZTV (FOX-17): [Viral photo of Tennessee veteran on VA hospital floor sparks outrage](#) (7 August, Kaylin Jorge, 484k uvm; Nashville, TN)

MURFREESBORO, Tenn. - A photo showing a veteran passed out on the floor at a middle Tennessee Department of Veterans Affairs hospital has sparked outrage and continues to go viral.

However, the VA is saying the story being shared on social media isn't what transpired.

FOX 17 News spoke with Gail Hobbs, who took a photo of her brother, Tony Sims, passed out on the floor at Murfreesboro VA. It's been liked and shared more than 300,000 times in just three days.

Gail, who has been taking care of Tony since April, said she took Tony to the Murfreesboro VA on Thursday, where he had blood work and a urine sample taken. According to Gail, despite Tony feeling very ill, the doctor told them both that he was "OK," but the doctor wanted to do an MRI.

After the MRI, Gail and Tony said they waited in a room that did not have a bed. Gail told FOX 17 News she repeatedly asked the doctor for a bed so that Tony may lie down because he was very tired, but the doctor allegedly said he couldn't be admitted, therefore not getting a bed, because he was not sick.

Tony was also cold and asked for a blanket, which nurses brought to him, according to Hobbs. Tony put the blanket on the floor and went to lay down, but Gail said he passed out before he reached the floor.

That's when she took the viral photo, captioned, "This is my brother Tony Mims laying in the floor at VA Hospital in Murfreesboro the Dr wasn't sure if he was sick enough to be admitted to hospital we waited eight hours for them to put him in a bed he can't even walk he deserves better treatment he served his country."

As of Monday afternoon, the post had been shared more than 232,000 times with more than 103,000 likes.

Gail said the nurses immediately came to Tony's aid after he was on the floor.

"The nurses were wonderful," Gail said over the phone.

The next day, Gail said Tony visited another doctor at the hospital who diagnosed him with pneumonia. When Gail asked how the doctor found that out, they replied, "by a simple swab of the nose."

Gail says Tony's previous doctor didn't look into anything other than his blood work, urine sample and MRI.

"I don't blame the VA, the VA has a long way to go to be perfect, like everyone," Gail said. "But you can't lump everything together."

Gail says she only blames the doctor who she believes didn't give Tony proper care. Gail didn't want to go on camera, and said she was overwhelmed with the amount of attention the photo has gotten. She says she didn't do it for the publicity, but to get her brother proper care.

Officials from the local VA, including the Murfreesboro VA director, met with Tony over the weekend. Gail is hoping to have Tony in a nursing home by the end of the week.

Meanwhile, FOX 17 News reached out to the local VA and received the following response:

As soon as we learned of this photo on Friday night, we immediately reviewed the Veteran's medical record and have since spoken to the Veteran personally. Our review determined that the facts are much different than what's presented in the Facebook post.

Tony Mims was admitted to VA Tennessee Valley Healthcare System August 2, the day the photo was taken. During a ten-minute wait for his provider to return to his exam room, Mims said that his sister, who had accompanied him to his appointment, helped him move to the floor of the exam room because he was tired. Mr. Mims estimated he was on the floor about ten minutes before a provider returned.

Mims is now an inpatient in our facility and he is being well taken care of. Our medical center director has visited the patient and has his assurance that he received good care and has no complaints.

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5.4 - The Telegraph: [Veterans serving veterans: County program fosters readjustment after service](#) (7 August, Jill Moon, 160k uvm; Alton, IL)

WOOD RIVER — A pair of U.S. Army combat veterans are working together on two fronts to help discharged and retired veterans of any military branch, discharge type and era.

Veterans' Assistance Commission (VAC) of Madison County Supervisor Bradley Lavite and Vet Center readjustment counselor Nathan Ferguson started a two-pronged VAC/Vet Center Group Outreach program that works toward a single goal of assisting veterans navigate the complex veterans health care and benefit system through the federal Veterans Health Administration and Benefits Administration, both under the U.S. Department of Veterans Affairs. Lavite and Ferguson aim to provide consistency in their approach to help veterans readjust and maintain a healthy stable life.

Lavite works on the benefits administration side, assisting veterans with complicated Veterans Administration (VA) benefits paperwork and disability filings. Ferguson works on the health administration side and provides one-on-one mental health counseling, as well as readjustment counseling for groups of veterans.

"When working on the benefits administrative side, we weave the question into every conversation, 'Have you met with the Vet Center?'" Lavite explained. "They can get in to be seen one-on-one, free of charge, for readjustment or other counseling services. The federal government foots the bill. These are free services sitting here — paid for — for veterans to access and use immediately within the community. Veterans don't have to register, they don't have to have a medical card or insurance. It's all free, because they served."

Lavite and Ferguson began working together in 2015 to combine their expertise from their respective fields to maximize and capitalize on the various benefits and counseling services veterans receive throughout Madison County. Lavite provides a complex roadmap created specifically for each individual veteran and Ferguson helps those individuals navigate that roadmap specifically on the counseling side of things.

Counseling provided by the Vet Center is strictly confidential and in accordance with HIPAA laws, addressing mental health issues, such as post-traumatic stress disorder, anxiety and readjustment.

“Readjustment is a primary focus because veterans in general — not just combat — have issues readjusting to numerous things in life,” Ferguson said.

Ferguson works for the federal Vet Center in East St. Louis and does outpatient clinical therapy at various Vet Center satellite locations, now including Von Dell Gallery, located at 102 E. Ferguson Ave. in Wood River. Ferguson is on site starting at 9:30 a.m. on the fourth Wednesday of each month in Wood River.

“A veteran can walk into any of those location, there's no screening or pre-registration required,” Lavite explained about each satellite VA center.

Consistent at each meeting and location is a counseling component, led by Ferguson, which goes along with Lavite's component of navigating benefits administrative requirements, such as understanding the VA disability and compensation process and filling out the plethora of forms.

Both Lavite and Ferguson, as well as their individual offices, spend numerous hours connecting veterans to resources and following-up with them to ensure that they are successfully navigating the numerous systems. Individual one-on-one appointments are available from 1 to 3:30 p.m. at each outreach location, as a convenience to the veteran and to those who may not have stable transportation. A delegation of local Madison County, Illinois, veterans established the VAC in 1933 for the singular purpose of assisting veterans in need.

Veterans who are active and participate in any of the VAC/Vet Center Group Outreach also has the opportunity to engage in a Von Dell Gallery art class provided by the VAC. Art classes give members of veteran groups a chance to maintain camaraderie in a laid-back, non-clinical environment; express themselves through art; and, complete a project to take home.

At this time, the VAC is planning to have quarterly art classes for those veterans who are active and participate as part of any of the established groups. The program's first quarterly art class at Von Dell occurred approximately three weeks ago, with the group taking instruction from award-winning artist Terry Diveley in his leathering art class. Diveley teaches the art of leather tooling and painting tooled images once pounded into a piece of leather.

The VAC/Vet Center Group Outreach meetings at the Von Dell Gallery are held on a re-occurring monthly basis, while the art classes are held on a quarterly basis and actively participating veterans are pre-registered by the VAC.

Lavite and Ferguson will hold the first monthly Wood River group outreach meeting, which is open to all veterans, at 9:30 a.m. Wednesday, Aug. 22, at Von Dell Gallery. After the veterans group outreach portion, veterans have the option of hanging around for Diveley's leather pictorial class, which he offers free to the general public from 11 a.m. to 3 p.m. every Wednesday.

Diveley asked that interested people please register by calling Von Dell Gallery at 618-251-8550 to make sure there are enough tools for each student. Von Dell Gallery, owned by Gary Conrad, of Grafton, currently offers 14 different painting classes to the general public for a reasonable fee.

Diveley, of Bethalto, leases a studio at Von Dell Gallery and teaches regular open-to-the-public classes at the gallery. He is just one of many talented regional artists who teach and/or lease a studio at Von Dell. The art classes offered at Von Dell Gallery are all instructed by different artists who highlight each of their specific medium. Visit www.vondellgalleryandstudios.com for a complete list of classes and more information. Follow Von Dell Gallery on Facebook @vondellgalleryandstudios.

To get plugged into a VAC/Vet Center Group Outreach, set up a one-on-one appointment or for additional information about the art program, call the Veterans Assistance Commission at 618-296-4554. Follow the Veterans Assistance Commission on Facebook @mcVeterans for more information.

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5.5 - WMFE (NPR-90.7, Audio): [Intersection: The Road To Better Care For Veterans](#) (7 August, Brenda Argueta, 70k uvm; Orlando, FL)

One of the challenges facing Veterans after their service is getting access to healthcare. Veterans Affairs secretary Robert Wilkie, who was sworn in last week, will address American Veterans tomorrow at the group's annual convention in Orlando. Improving access to healthcare is one of the issues the service organization is looking to Wilkie to address.

Sherman Gillums Jr., AMVETS chief strategy officer says the VA secretary is "responsible for delivering on a country's promise."

"This is the first time we're going to see him as secretary talking to these people about his agenda, his ideas on how to address some of the issues we've all heard about for years and we're going to also have some time to talk to him one-on-one," Gillums Jr. says.

"I've come to expect more that we will be proactive and we will push what we think needs to happen and seek to, through a partnership with him, make those things happen," Gillums Jr. says.

Lana McKenzie, AMVETS chief medical executive, says improving staffing levels can be a starting point to improve access to healthcare.

"When you have demand and supply issues, you're going to face poor outcomes and I think that that's the logistic of access to care issues [still] creeping up," McKenzie says.

"Because there's so little consistency between the 157 facilities, you go to one you're not going to have that same experience at another necessarily so it just kind of depends on where you happen to settle after you get out of the military," Gillums Jr. says.

Gillums Jr. was injured in a car accident while in the Marine Corps. He says the secret to successful rehabilitation through the VA is peer mentorship.

"The best dose of medicine you can be administered is seeing another individual who has lived with that injury or that condition being successful," Gillums Jr. says.

"The culture at the VA needs a little reshape on the attitude toward veterans. They're not beggars. I think that they have choices so if you want them to become a choice of the VA, you need to show them that they want it and you're willing to serve," McKenzie says.

AMVETS is organizing a town hall meeting for veterans Tuesday night. Gillums Jr. says AMVETS will take the concerns of veterans to Wilkie, and it will be his "opportunity to demonstrate to us that he's going to listen to us."

"As long as there's a veteran on the street or as long as there's somebody waiting to get in, his honeymoon will be very short if at all. We've said that publicly and I think he embraces that challenge," Gillums Jr. says.

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5.6 - WMBB (ABC-13): [Senator Nelson Speaks with Local Veterans](#) (7 August, Chelsie Taddonio, 50k uvm; Panama City, FL)

Veterans from around Bay County expressed concerns to U.S. Sen. Bill Nelson at a round table meeting in Panama City.

Sen. Nelson spoke with veterans about a piece of legislation he is proposing, that would protect the military from being taken advantage of by payday loans. The legislation would cap the interest rate at 24 %. He says this is so... "the poor member of the service doesn't keep building up these loans that they can't pay. And then have to declare bankruptcy."

The veterans didn't comment much on the legislation because they were eager to discuss certain matters; and the conversation quickly turned to Veterans Affairs. After talking for about an hour Sen. Nelson had a clear picture of their concerns.

"They have excellent care, they're very happy with the va doctors and nurses. But it's the administrative problem," said Nelson.

VFW Commander of District 17, Tony Salvo continued to explain the dilemma with the VA. "If you go to get an appointment sometimes it takes 4 to 6 to 8 weeks... It's just too long."

The veterans also brought up homelessness among veterans within Bay County. "Veterans particularly coming out of Vietnam have always had a real homeless problem, " said Nelson.

"We do know that the VA is in the process of fixing the homeless problem. They're in the process of building homes and areas for these veterans to live. It's gonna be a long slow walk before we get there," said Salvo.

Sen. Nelson took these concerns to Tallahassee, where he met with the Secretary of Veterans Affairs on Aug. 07, 2018.

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5.7 - White Mountain Independent: [Snowflake resident spearheads VA policy change](#) (7 August, Laura Singleton, 37k uvm; Show Low, AZ)

SNOWFLAKE — Julius Aubin, a Navy veteran and a resident of Snowflake since 2002, is a mover and a shaker. He can also breathe a little easier now – literally.

Aubin has been on a mission to improve healthcare for veterans like himself who use portable oxygen tanks to help them breathe. Specifically, he wants veterans to “get out and be mobile.”

“It’s hard to go out to a kids’ baseball game on a tank of oxygen that only lasts four hours,” testifies Aubin. “And, you can’t even go fishing because you’ve got this big bottle that bumps around and makes all kinds of noise.”

“If you go on vacation, you’ve got to give the VA an in-depth itinerary to get travel bottles way ahead of time,” says Aubin. “I don’t know about you, but when I’m on vacation, my only itinerary is ‘I’m leaving and I’m coming back at some point; everything else is the in-between.’”

So, for more than a year, he has been contacting the Veteran’s Administration in Phoenix. He has also spoken with Congressman Tom O’Halloran at the local VFW Post in Show Low where he was able to demonstrate the bulky oxygen tank and cart that he has carried with him for two years.

“He has really advocated strongly for veteran’s issues like the portable oxygen concentrators,” says Shawn Bransky, Deputy Director of the Phoenix Veteran’s Administration (VA) Healthcare System. “Julius is not one that let’s go; he is a champion of his cause.”

There are several challenges that come with the oxygen tanks and carts, in addition to the weight and overall bulkiness. According to Aubin, the tanks that people take with them only last for two to four hours, depending on the size. “This makes it difficult to go fishing, traveling or doing things outside the home that take time,” says Aubin.

In addition, the empty oxygen bottles stack up in the house and, in rural areas like the White Mountains, it can be difficult for the company to come pick them up regularly. This is especially the case when there is inclement weather.

Aubin, originally from Baton Rouge, Louisiana, says that getting portable oxygen concentrators to veterans that are prescribed oxygen by their doctors has been a brainchild of his. It all started when he decided to travel across the country for his high school class reunion.

“I had already made plans to go on vacation to Louisiana for the reunion,” says Aubin. “I knew I was going to have to drag the oxygen tank and cart with me, so I started digging and trying to find a way to get a portable oxygen concentrator from the VA,” he explained. “I found out that the VA needs six to eight weeks advance notice for this.”

“Your quality of life and your mobility is not as great with the tanks as it can be by having a mobile oxygen concentrator,” says Aubin. “For example, you can bring the tanks on a plane but you have to wheel them around and I know first and foremost how it is to do that,” he added.

After hitting several roadblocks with his attempts to obtain a portable concentrator to travel with, he got in contact with a company that was able to help him. In addition, Dr. Simranjit S. Galhotra, a pulmonary specialist with Summit Healthcare Regional Medical Center, was willing to assist Aubin in his efforts. The end result – Aubin obtained a portable oxygen concentrator from the VA in time to take it with him on his trip.

"The whole time I was on vacation, this was on my mind," says Aubin. "All of my experience and phone calls trying to get a portable oxygen concentrator for myself led up to what the VA is doing now."

"Once I was able to use the portable concentrator while traveling, I saw very clearly what was needed for other veterans," says Aubin.

Upon returning from vacation, Aubin resumed his communication with the VA administration, showing them how portable oxygen concentrators could improve quality of life as well as save money.

"Mr. Aubin actually came to me with a business case already done and he walked me through it step-by-step," says Bransky. "I'm not a physician, but I understand that not everyone is a candidate for portable oxygen concentrators," he added. "As a result of Mr. Aubin's tenacity, we have now built a Phoenix VA Healthcare System policy that we are fine-tuning and will get out to the veterans at large."

According to Aubin, the VA will arrange to rent a portable machine for the veteran for 30 days. If they keep it beyond the 30 days, then they pay rental fees. With this program, the idea is for the VA to buy the portable oxygen concentrator. When the veteran no longer needs it, it can be returned to the VA, serviced and authorized for another patient.

Aubin claims that this process, when compared to the one-time purchase of portable oxygen concentrator will save money over time.

"When the program officially gets off the ground, the VA may even rent the portable machines from the company that provides the Activator brand of concentrator," says Aubin.

"They are working on the company owning the machines and the VA rents the machines from them. From \$100 to \$200 per month which is very inexpensive," says Aubin.

Currently, this policy will only pertain to the Phoenix VA facility and the nine outpatient clinics that fall under the Phoenix VA healthcare umbrella said Bransky. "We will have specific parameters to ensure that we roll this out in a manner that is organized, well-understood and effectively communicated," he added.

Bransky also said that the process must be efficient so that veterans don't get frustrated. Physicians will have the very important role of making sure that the patient is a candidate for portable oxygen before they go through the process.

"We have drafted a policy this is now being reviewed by the Director Rima Nelson and we expect approval in the near future," assures Bransky. "It's not something that we have considered before I think it's a great initiative and something that enhances quality of life," he added.

Although the policy is close to being signed and implemented by the VA, Aubin is not one to relax. He is continuing his information campaign and plans to organize another town hall meeting this month at the VFW in Show Low.

Aubin encourages veterans and their families to contact him at 928-536-2485 if they would like to more information about the pending healthcare policy.

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6. [Suicide Prevention](#)

6.1 - Dispatch - Argus: [VA says reaching vets key to stopping suicide](#) (7 August, Jim Meenan, 311k uvm; Moline, IL)

The numbers speak harshly for themselves.

Every day, about 20 U.S. veterans and current service men and women commit suicide. On average, only about six of those veterans are receiving care from the Veterans Administration.

Bryan Clark is bothered by the number of veterans taking their lives, as well as how many do not reach out for the help they've earned. Clark is the public affairs officer for the Veterans Affairs Health Care System in Iowa City that serves 51 western Illinois and eastern Iowa counties.

"These are earned benefits," Clark says. "Don't leave them untapped."

Currently, the Quad-Cities has three VA facilities offering everything from primary care to laundry and shower facilities.

A 34,000-square-foot facility near the Mississippi Valley Fairgrounds in Davenport is scheduled to replace a current one in Bettendorf early next year. Bettendorf's Victoria Street facility offers psychology and psychiatry services. Davenport's VA Community Resource and Referral Center's services on North Perry Street includes suicide prevention and psychology. The Quad-Cities Vet Center on 42nd Avenue in East Moline includes mental health counseling services.

Additionally, any veteran can call the Veteran's Crisis Line at 1-800-273-8255 and press 1 to talk to someone. There's also immediate help, if needed, in local emergency rooms.

"The vast majority of the time, (callers) are just looking for somebody to talk to," said Darin Person, Suicide Prevention Coordinator for the VA Health Care System in the Iowa City.

He said that only about twice a week does someone in the vast area his office serves need a rescue.

In non-emergency situations, Person's office contacts them. If the veteran has an existing mental health team working with them, that team contacts the VA office. Either way, follow-up occurs within 24 hours.

The bigger problem Clark alluded to is reaching troubled veterans before they commit suicide. he said the VA does outreach on a regular basis through public meetings, American Legion posts and Veterans of Foreign Wars organizations.

"We know we can't reach all the veterans ourselves," said Dr. Jason Drwal, staff psychologist at the VA Health Center in Iowa City that tries to connect with community leaders and local mental health services.

Veteran suicide rates in this region are similar to the national average, Person said. But he and the VA subscribe to the belief that any suicide is one too many.

What finally pushes a veteran over the edge could be something that went untreated for years, Drwal said.

"A lot of the guys that we see from the Vietnam era are struggling with things that happened when they were in the service, that happened when they got home and didn't feel welcomed here," Drwal said. "A lot of guys didn't feel they had an outlet to deal with that."

It's harder to keep veterans from recent wars engaged in treatment, he said, because they sometimes find it difficult to make the time to deal with an issue.

"I think the challenge with the younger guys that we see is that these are guys who just want to get back to life and don't want to bother with it," Drwal said. "They've got families and jobs and things to do."

But progress is being made, Person said. In his eight years with the Iowa City VA office, things are "significantly better," he said.

"Our programs have grown," he said. "We have a lot more staff. We have much more of a variety of services to fit people's needs better."

Technology helps. Drwal says he now can provide therapy to a veteran anywhere in the country by using an electronic tablet.

Most referrals, he said, come from the medical community.

"Primary care can send a lot of referrals to (VA) psychiatry and then they prescribe meds and send them to (VA) psychology where they can get into psychotherapy," Drwal said.

"Within the VA system, there is just a real strong emphasis on mental health services," he said. "They (veterans) are going to be screened by multiple services and providers."

He noted, however, it might take one person six different referrals before they finally decide to come in for help.

"We will eventually get them to the right services, if we are connected," Drwal said. "It's really the people who don't have any connection to us that are really left out."

The ultimate goal, he said, is to get people in, treat them, educate them and arm them with the ability to cope.

"Get them to start doing things so that they can start living their life differently," Drwal said. "If you are not helping them to live everyday life differently, then you are not going to make changes in terms of what they can do and how they interact with their family or their ability to either get work or maintain the work they have."

While today's therapies are more focused on teaching skills and strategies, the basic start — listening to the veteran — is still the same, he said. Also remaining is the stigma in seeking mental health care.

"That's kind of the big hurdle we are facing on a daily basis," Drwal said. "Once they come in, there's all kinds of things that we can do for them."

He said the VA is sensitive to allegations that too many vets are put on medicine instead of therapy to address mental illness. If a person had a sore throat and a pill could cure it, he said, would you not ask them to consider taking the pill?

"Every case is different," Person said. "We certainly have folks who do one or the other and sustain recovery."

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6.2 - The Daily News: [VA center in IM to host Mental Health Summit at Bay West](#) (7 August, 54k uvm; Iron Mountain, MI)

IRON MOUNTAIN — The Oscar G. Johnson VA Medical Center will host its sixth annual Mental Health Summit on Tuesday, Aug. 21, in Fornetti Hall at Bay College West, 2801 N. U.S.2 in north Iron Mountain.

The event will be 9 a.m. to noon, and is open to local government human services, community mental health agencies, hospitals, veterans and their families, and any other interested organizations or individuals.

The purpose of the Mental Health Summit is to bring together these key stakeholders in the community with the goal of enhancing the mental health and well-being of veterans and their families

"We are building bridges with community partners to serve those who served us," said Amy Fowler, this year's summit coordinator.

Topics at this year's Mental Health Summit include suicide prevention, access to mental health care, eliminating mental health stigma, the Veterans Administration's new Whole Health Program and health care designed for women veterans.

"We have found these Mental Health Summits to be beneficial in addressing the mental health needs of our veterans, especially in our rural patient areas," said Jim Rice, director for the Oscar G. Johnson VA Medical Center.

"We cannot do it alone, especially in tackling the VA's top clinical priority, suicide prevention," Rice added.

For more information or to register for the summit, contact Amy Fowler at Amy.Fowler1@va.gov or 906-774-3300, ext. 32742.

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7. Women Veterans / Homelessness / Benefits / Cemeteries

7.1 - WCTV (CBS-6, Video): Local World War II vet has VA Clinic named in his honor (7 August, Alicia Turner, 1.4M uvm; Tallahassee, FL)

You probably recognize the famous World War II photo of the flag being raised on Iwo Jima. But, the photo most think of wasn't the original flag to be raised.

And, one of the soldiers who helped raise the first flag grew up in Monticello.

About a week after the photo was taken, Earnest Boots Thomas was killed in the line of duty. He received multiple honors, including the Purple Heart. And, on Tuesday, he was honored again, as President Trump signed a proclamation to name the VA building on Orange Avenue after him.

A table decorated with pictures of the past line the walls of the Veterans Clinic to recognize and honor the life of Sgt. Thomas.

"I think they'll love it," said Reba Weams Williams, "It now has a name they can honor and respect and now more and more people are learning about Thomas."

Sgt. Thomas was just 17 when he went into the Marines. He died days before his 21st birthday.

Rebekah Sheats wrote a biography of his life, where she says early on he set out to make a difference.

"His father died when he was young and he had to take responsibility for his family and his younger siblings and his mother. He really understood," Sheats said. "When WWII came, it was his position to stand in the gap to protect his family, his home and his country."

Sheats explained his dedication to service and his country is worthy of being admired.

"Boots died over 70 years ago and his name is still remembered today," Sheats continued, "And that has to be encouraging to know that their sacrifice isn't in vein that people do appreciate it and they will honor them for it."

An honor that, Sgt. Thomas' family says, will never be forgotten.

Senator Bill Nelson and Congressman Al Lawson were among those who spoke at Tuesday's ceremony, and each said what a historic moment the renaming is.

There's no word yet on when Thomas' name will actually be displayed.

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7.2 - Tallahassee Democrat: VA secretary helps rename vets clinic for Monticello Marine Ernest "Boots" Thomas (7 August, James Call, 439k uvm; Tallahassee, FL)

Monticello's Dr. Jim Sledge remembers the ship-borne broadcast with Sgt. Ernest "Boots" Thomas a couple days after the iconic flag raising during the World War II battle for Iwo Jima. A photo taken of it by the Associated Press appeared around the country in 1945 while the U.S. prepared a final assault on imperial Japan.

At the rededication ceremony of the Veterans Affairs Clinic in Tallahassee Tuesday, Sledge recalled how his best friend from childhood deftly handled a radio interview about how he had mounted the flag in a volcanic crest atop Mount Suribachi.

"Sgt. Thomas said, 'I don't want to give that impression. Every man in my platoon should be standing here with me today,'" Sledge told the nearly 400 people who attended Tuesday's ceremony.

"So, there was enough honor to go around for everyone," Sledge continued. Members of the Thomas family credit Sledge with keeping Boots' story alive and the subsequent honors bestowed on him.

The radio broadcast Sledge recalled aired a week after Thomas led his squadron to the top of the mount on day four of the battle. It served as a beacon to fellow Marines engaged in combat in the jungle below. Immediately after the radio broadcast, Thomas rejoined his squadron on the island. A couple days later he was among the 4,000 Marines who died before Iwo Jima was secured.

He was originally laid to rest in Iwo Jima but Jefferson County brought him home to Roseland Cemetery. Three years ago, Monticello erected a memorial near his grave site and Tuesday, Veterans Affairs Secretary Robert Wilkie led a contingent from Washington that included Sen. Bill Nelson, congressmen Neal Dunn and Al Lawson and local politicians that paid a further tribute to the Monticello Marine.

Nelson and Lawson acted on a request from Jefferson County residents and carried the bills through Congress that formally named the Tallahassee facility the Sergeant Ernest I. "Boots" Thomas VA Clinic

"Thank you for rededicating this wonderful facility in the name of a man from a generation that continues to inspire," Secretary Wilkie told the crowd that overflowed from the facilities main lobby and down a hallway pass a coffee bar, pharmacy, a waiting area for radiology and entrances to other labs and offices.

Wilkie was confirmed two weeks ago, as head of a embattled department with more than 1,500 outpatient clinics and hospitals to serve the nation's veterans. The "Boots" Thomas VA Clinic opened in 2016 and serves more than 16,000 veterans in North Florida and South Georgia.

"Our family is humbled by the honor of the naming of this beautiful facility after Boots Thomas," said Lynn Blais, Thomas' great grand-niece. "We hope the veterans who come here receive the very best care a grateful nation can provide."

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7.3 - SportTechie: [U.S. Veteran Steve Kirk Uses Breath-Triggered Gun at Wheelchair Games](#) (7 August, Logan Bradley, 157k uvm; Washington, DC)

A 1980 skiing accident left U.S. Army veteran Steve Kirk with a dislocated neck and little use of his arms or legs. Almost forty years later, Kirk was competing at last week's National Veterans Wheelchair Games. Kirk took part in the air rifle competition thanks to a gun that is triggered by his breath.

A sharp inhale from Kirk is enough to fire his gun. (Inhaling is used instead of exhaling as the trigger, because exhaling can happen accidentally.) The solution, customized by the Orlando VA Medical Center, follows similar adaptations for disabled athletes competing in other sports—repurposing their movements for the desired effect.

“It allows them the opportunity to forget that they are disabled for a little while,” said Christina Lafex, a recreational therapist and coordinator at Orlando VA, in an interview with the Orlando Sentinel. “Otherwise, they might get quiet and dig into a cocoon and just stay there.”

This year's games (which ran from Jul. 30 to Aug. 4) featured an exhibition space dedicated to adaptive technology products. For many like Kirk, technology has opened up a whole new competitive avenue.

“If [the accident] happened today, I'd probably be able to walk again at some point,” Kirk told the Sentinel. “But it's not about staying home and feeling sorry for yourself.”

SportTechie Takeaway

Technology has allowed disabled athletes to compete in ways that they otherwise couldn't. Ahead of this year's Winter Paralympics, engineers at Toyota Motorsport helped Paralympian Andrea Eskau redesign her sled. Toyota was able to create a significant weight reduction in the sled. In PyeongChang, the German parathlete added two gold medals, two silvers and one bronze to her already impressive haul from six different Summer and Winter Games.

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7.4 - St. George News: [Salt Lake City Veterans Affairs office to hold first 'Benefits Fair' in St. George](#) (7 August, Ryan Rees, 156k uvm; Saint George, UT)

ST. GEORGE — Area veterans will be able to get assistance for a variety of needs when the Department of Veterans Affairs Salt Lake City regional office's outreach team hosts its first “Benefits Fair” Aug. 14 in St. George.

The event will take place from 8 a.m. to noon at the St. George Veterans Center, 1664 S. Dixie Drive, Suite C-102.

“This is new for us,” said Thomas Lamb, outreach specialist in the St. George Veterans Affairs office. “They (Veterans Benefits Administration) are sending down two people who are the actual people who handle the benefits paperwork in the Salt Lake office.”

This will be the first time the outreach team has visited Southern Utah, but it may not be the last, said Adam Kinder, a spokesperson for the Veterans Administration in Salt Lake City.

“This is an opportunity to reach a portion of the population that doesn’t have easy access to the regional office here (in Salt Lake City),” he said. “We conduct these fairs around the state and try to see if the need is there by gauging the attendance. If it’s a good turnout, we’ll look at doing more.”

Kinder said veterans will be able to get information on how to file claims, research the status of their claims, vocational rehabilitation and employment, survivor or burial benefits or find out what other benefits may be available to them at the fair.

Another goal of the fair, Kinder said, is to reach veterans who are not currently involved in receiving benefits.

Court Pendleton, the officer who oversees four Utah veterans service offices in the area, said the benefits fair will “help fulfill a real need in this area.”

Pendleton’s office oversees 11 counties in Southern Utah, which he said represents about 10 percent of all veterans in Utah, adding that there are 11,800 veterans in Washington County and another 3,000 in Iron County.

Lamb said the main focus in the St. George office is to offer combat veterans counseling.

“We can help them with marriage problems, PTSD or if they’re just having a bad day,” he said. “They can walk in any time. We’re very accessible.”

Both Lamb and Pendleton said they hope the St. George fair will encourage the Salt Lake City office to hold more events in St. George in the future.

“We hold a quarterly fair of our own,” Pendleton said, “but I think after this event, they will want to have a monthly fair here.”

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8. [Other](#)

8.1 - South Bend Tribune: [Viewpoint: Donnelly, a tireless advocate for vets, should be re-elected](#) (7 August, Joe Kernan, 274k uvm; South Bend, IN)

As a Vietnam War veteran and prisoner of war, a former governor of Indiana and a longtime South Bend resident, I believe that we need to re-elect Joe Donnelly to the U.S. Senate. Joe has been a tireless advocate for veterans and service members in the Senate. He works in a bipartisan and common-sense way to deliver real results for all Hoosiers.

Look no further than the new St. Joseph County VA Health Clinic for proof of Joe’s tireless efforts to deliver for Hoosier veterans. Joe worked for nearly 10 years — since he was a congressman for Indiana’s 2nd Congressional District — to make the impressive VA clinic in Mishawaka a reality for veterans living in northcentral Indiana. Gone are the days when veterans living in South Bend, Elkhart and LaPorte need to travel to Fort Wayne, Chicago or Indianapolis for care from the VA. This new clinic has been life-changing for veterans like

myself, and I can tell you that it would not have been built without Joe's passion for making life better for veterans in Indiana. He hasn't stopped at the VA health clinic in Mishawaka; he's working hard to help bring more VA clinics to Indiana and meet the needs of every Hoosier veteran.

As a Vietnam veteran, I was proud that Joe authored bipartisan legislation so that March 29 of every year would be recognized as National Vietnam War Veterans Day and worked until it was signed into law by President Donald Trump. On March 29, Joe welcomed home more than 900 Hoosier Vietnam War veterans with their family members at Plainfield High School for the first Vietnam War Veterans Day and thanked them for their service to this great nation.

Joe is also shining a light in Congress on the importance of mental health for service members and veterans. His Jacob Sexton Military Suicide Prevention Act and his Servicemember and Veteran Mental Health Care Package are bipartisan efforts to reduce service member and veteran suicide and help us access mental health services that are right for us. As a veteran and prisoner of war, I understand all too well that the wounds of war are both physical and mental. It's difficult for the men and women in service who are coming home to find a prepared medical professional properly trained to understand the unique traumas that they brought home from war. Joe's efforts have brought about meaningful change for how the military and veterans talk about and treat mental health.

There is so much more work to be done in Washington on behalf of the men and women veterans and service members. Let's work together to send Joe back to the Senate next year because he's the guy for the job.

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Date: Tue May 15 2018 11:55:39 EDT
Attachments:

(b) (6) 10:01 AM:

Howdy!

(b) (6) 10:02 AM:

morning - not sure how to stay the course in the wake of LK's stepping away from CMIO role here. your thoughts?

(b) (6) 10:02 AM:

i agree (b) (6) ...

(b) (6) 10:03 AM:

::(

(b) (6) 10:03 AM:

Me too :'(

(b) (6) 10:12 AM:

on and muted

(b) (6) 10:12 AM:

good morning!

(b) (6) n 10:14 AM:

i'm attaching the file of the exec summary of the DOD rollout (publically sent out)

(b) (6) 10:16 AM:

This was article from Friday - <https://www.politico.com/story/2018/05/11/kushner-backed-health-care-project-gets-devastating-review-535847>

(b) (6) 10:18 AM:

i would like to see the Cerner reply...link/ file?

(b) (6) 10:22 AM:

<https://www.nextgov.com/topic/health-records/?oref=ng-article-topics>

(b) (6) 10:27 AM:

stepping away for a minute will be back.

(b) (6) 10:29 AM:

back

(b) (6) 10:30 AM:

"For a successful technology, reality must take precedence over public relations, for nature cannot be fooled."

This statement was Feynman's succinct way of telling NASA to clean up its act after the explosion of the space shuttle Challenger in 1986.

(b) (6) 10:36 AM:

I don't think I have more. Thanks for covering it

(b) (6) 10:38 AM:

MyHealtheVet ability to download imaging... went live about the same time the JLV problems started, but still no smoking guns identified

(b) (6) 10:43 AM:

In the news- VA CFO and Assistant Secretary for Management John Rychalski said we would have a decision (not signed contract, but a "decision" on Memorial day in Congressional Testimony (testimony video 1:03:12)

(b) (6) (BAH) 10:51 AM:

Harsh!

(b) (6) 10:52 AM:

need to have an occasional laugh. I love (b) (6) but won't miss him b/c we'll be slapping him with work in a few months anyway before we lose him to one of the other teams/ councils

(b) (6) (BAH) 10:52 AM:

I know. I'm going to miss him, too.

(b) (6) 10:52 AM:

he's not getting away that easy. Neither will LK

(b) (6) V10 10:53 AM:

Agree (b) (6) ! We know how to find them both!

(b) (6) (BAH) 10:54 AM:

Nothing from me, thanks.

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Subject: [EXTERNAL] EHRM in the News: Monday, May 14, 2018

EHRM in the News

Monday, May 14, 2018

EHRM News

Politico: Kushner-backed health care project gets 'devastating' review (11 May 2018, Arthur Allen)

*The first stage of a multibillion-dollar military-VA digital health program championed by Jared Kushner has been riddled with problems so severe they could have led to patient deaths, according to a report obtained by POLITICO.

*The April 30 report expands upon the findings of a March POLITICO story in which doctors and IT specialists expressed alarm about the software system, describing how clinicians at one of four pilot centers, Naval Station Bremerton, quit because they were terrified they might hurt patients, or even kill them.

*In a briefing with reporters late Friday, Pentagon officials said they had made many improvements to the pilot at four bases in the Pacific Northwest since the study team ended its review in November.

*"MHS Genesis is extremely important and it is important to get MHS Genesis right," said Vice Adm. Raquel Bono, chief of the Defense Health Agency. "Feedback from the test community and dedicated professionals at the sites has been invaluable."

Health Data Management: DoD rollout of Cerner EHR deemed not operationally effective or suitable (14 May 2018, Greg Slabodkin)

*While the Department of Defense contends that its initial deployment last year of MHS GENESIS—a new Cerner electronic health record system—at four military sites in the Pacific Northwest was a success. The EHR is “neither operationally effective nor operationally suitable,” according to a scathing report from DoD’s director of operational test and evaluation.

*“MHS GENESIS is not operationally effective because it does not demonstrate enough workable functionality to manage and document patient care,” wrote Robert Behler, director of operational test and evaluation, in a letter to senior Pentagon officials accompanying his report. “Users successfully performed only 56 percent of the 197 tasks used as measures of performance.

*As a result of the findings, Behler recommended that the Under Secretary of Defense for Acquisition and Sustainment delay further fielding of the Cerner EHR until the Joint Interoperability Test Command completes the initial operational test and evaluation and the Program Management Office “corrects any outstanding deficiencies.”

*Stacy Cummings, program executive officer for Defense Healthcare Management Systems, told members of the press on Friday that despite the findings of the DOT&E report, DoD still plans to continue deployment of MHS GENESIS beyond the Pacific Northwest beginning in 2019, and that the system continues to be on track for full deployment by 2022.

Cerner News

There were no recent news stories related to Cerner

Allscripts News

There were no recent news stories related to Allscripts

Epic News

There were no recent news stories related to Epic Systems

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EHRM in the News

Monday, May 14, 2018

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Epic News

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EHRM in the News

Monday, April 30, 2018

EHRM News

Politico: 'Who the hell is this person?' Trump's Mar-a-Lago pal stymies VA project (30 April 2018, Arthur Allen)

*A West Palm Beach doctor's ties to Donald Trump's Mar-a-Lago social circle have enabled him to hold up the biggest health information technology project in history — the transformation of the VA's digital records system.

*Dr. Bruce Moskowitz, an internist and friend of Trump confidant Ike Perlmutter, who advises the president informally on vet issues, objected to the \$16 billion Department of Veterans Affairs project because he doesn't like the Cerner Corp. software he uses at two Florida hospitals, according to four former and current senior VA officials.

Modern Healthcare: Ascension's Tersigni on short list for VA secretary (29 April 2018, Aurora Aguilar)

*Ascension President and CEO Anthony Tersigni is among those being considered to lead the Veterans

Affairs Department, sources close to the matter say.

*Tersigni's experience and knowledge of issues affecting not just the VA, but healthcare overall may give him a decided advantage.

*Similar to the VA, Ascension is also upgrading and standardizing its electronic health record system, a massive task. Ascension's project stretches across 150 hospitals and 2,600 sites of care and is intended, among other things, to boost digital and telemedicine services.

Cerner News

There were no recent stories related to Cerner

Allscripts News

There were no recent news stories related to Allscripts

Epic News

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Filename: EHRM in the News - Monday, April 30, 2018.docx
Last Modified: Mon Apr 30 06:57:45 CDT 2018

EHRM in the News

Monday, April 30, 2018

Politico: [‘Who the hell is this person?’ Trump’s Mar-a-Lago pal stymies VA project](#) (30 April 2018, Arthur Allen)

A West Palm Beach doctor’s ties to Donald Trump’s Mar-a-Lago social circle have enabled him to hold up the biggest health information technology project in history — the transformation of the VA’s digital records system.

Dr. Bruce Moskowitz, an internist and friend of Trump confidant Ike Perlmutter, who advises the president informally on vet issues, objected to the \$16 billion Department of Veterans Affairs project because he doesn’t like the Cerner Corp. software he uses at two Florida hospitals, according to four former and current senior VA officials.

Modern Healthcare: [Ascension's Tersigni on short list for VA secretary](#) (29 April 2018, Aurora Aguilar)

Ascension President and CEO Anthony Tersigni is among those being considered to lead the Veterans Affairs Department, sources close to the matter say.

Tersigni's experience and knowledge of issues affecting not just the VA, but healthcare overall may give him a decided advantage.

Similar to the VA, Ascension is also upgrading and standardizing its electronic health record system, a massive task. Ascension's project stretches across 150 hospitals and 2,600 sites of care and is intended, among other things, to boost digital and telemedicine services.

Cerner News

There were no recent stories related to Cerner

Allscripts News

There were no recent news stories related to Allscripts

Epic News

There were no recent news stories related to Epic

From: (b) (6) (OIA) (b) (6) @va.gov>
To: (b) (6) (OIA) </o=va/ou=visn
15/cn=recipients/cn=(b) (6)>; Kroupa, Laura (V15)
</o=va/ou=visn 15/cn=recipients/cn=(b) (6)>
Cc:
Bcc:
Subject: Conversation with Daniel Marsh (OIA)
Date: Thu Apr 19 2018 11:10:01 EDT
Attachments:

(b) (6) (OIA) 10:02 AM:

Morning... Im on the Deployment call... Not sure if (b) (6) is trying to chase me away...

Kroupa, Laura (V15) 10:02 AM:

No stay-I can only stay for a few minutes.....I really need to stop coming.

Kroupa, Laura (V15) 10:03 AM:

Maybe I can catch up with you late today.....so much going on

(b) (6) 10:03 AM:

Okay...

(b) (6) 10:03 AM:

Sure... are you in DC?

Kroupa, Laura (V15) 10:03 AM:

lots of org chart issues

Kroupa, Laura (V15) 10:03 AM:

Just got back from DC last night at 10:00 pm

Kroupa, Laura (V15) 10:03 AM:

Interesting meetings

Kroupa, Laura (V15) 10:04 AM:

Can't believe Cam Sandoval is the new CIO.....this organization is going to have to run itself as the top leadership is going to be clueless

Kroupa, Laura (V15) 10:05 AM:

But I guess if you are a friend of Jared you don't need to be qualified

(b) (6) 10:06 AM:

LOL... Its getting more bizarre day by day...

Kroupa, Laura (V15) 10:07 AM:

is there any product from the deployment work over the last few months?

Kroupa, Laura (V15) 10:07 AM:

retorical question only

(b) (6) 10:08 AM:

Thats a good question... (b) (6) slides?

From: Kroupa, Laura (V15) </o=va/ou=visn15/cn=recipients/cn=(b) (6)>
To: (b) (6) </o=va/ou=visn 08/cn=recipients/cn=(b) (6)>
Cc:
Bcc:
Subject: RE: HISTalk
Date: Fri Mar 30 2018 08:53:23 EDT
Attachments: image001.png
image002.png
image003.png
image004.png

If you scroll down the page, you'll see this!

<http://histalk2.com/feed/>

Laura

From: (b) (6)
Sent: Friday, March 30, 2018 7:50 AM
To: Kroupa, Laura (V15) (b) (6) @va.gov>
Subject: RE: HISTalk

Nope, thanks for sharing!!!

From: (b) (6)
Sent: Friday, March 30, 2018 8:49 AM
To: (b) (6) <(b) (6) @va.gov>

Subject: HISTalk

You may have seen this already:

From HISTalk:

News 3/30/18

Yesterday, March 29, 2018, 5:27:37 PM | Jennifer

Top News

President Trump fires VA Secretary David Shulkin, MD after a wave of negative press around questionable funding for Shulkin's trip to Europe last summer. Shulkin believes the ouster came from political opponents who want to privatize the VA, a move he was quick to slam Wednesday in a New York Times editorial.

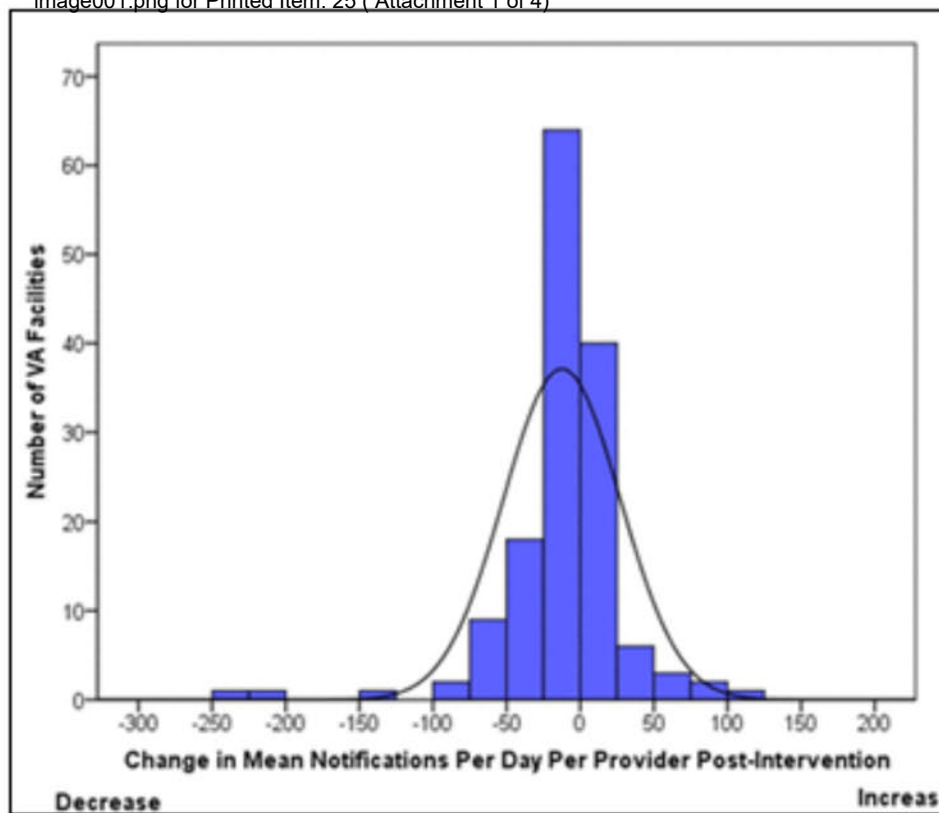
President Trump will nominate the White House physician, Rear Admiral Ronny Jackson, MD, as Shulkin's replacement. Shulkin had reportedly recommended Jackson for a VA undersecretary position last fall, but the President wanted him to remain in the White House.

Though Jackson served as an emergency medicine physician during Operation Iraqi Freedom, veterans groups question his nomination, citing concerns over a lack of administrative experience. I tweeted on the news, "Choosing an un beholden outsider in hoping for disruption or believing that character (good or bad) outweighs experience sounds good. But I'm not sure I'd want as my first management job to be running a \$200 billion, politically microscoped organization. Whatever the VA pays isn't enough."

The status of the VA's proposed no-bid contract with Cerner remains cloudy as Shulkin departed without signing it. Experts are expressing confidence that Acting Secretary Robert Wilkie – who has no VA or healthcare experience — won't want to take on the responsibility of executing the Cerner contract, but I wouldn't be so sure: Jared Kushner pushed Cerner in the first place and the White House may tell Wilkie to just get it done as a purely administrative chore that lets the White House take immediate credit. That's the bet I'd make.

:

Owner: Kroupa, Laura (V15) </o=va/ou=visn 15/cn=recipients/cn=(b) (6)>
Filename: image001.png
Last Modified: Fri Mar 30 07:53:23 CDT 2018



A study of VA facilities [finds](#) that reducing low-value EHR inbox notifications saved 1.5 hours per week of PCP time, although the information overload remains unmanageable and will require more work to fix.

VA-18-0298-F, VA-18-0299-F-000096
000096

Owner: Kroupa, Laura (V15) </o=va/ou=visn 15/cn=recipients/cn=(b) (6)>
Filename: image002.png
Last Modified: Fri Mar 30 07:53:23 CDT 2018

Owner: Kroupa, Laura (V15) </o=va/ou=visn 15/cn=recipients/cn=(b) (6)>
Filename: image003.png
Last Modified: Fri Mar 30 07:53:23 CDT 2018



0298-F, VA-18-0299-F-000100

000100

AMERICAN
OVERSIGHT

Owner: Kroupa, Laura (V15) </o=va/ou=visn 15/cn=recipients/cn=(b) (6)>
Filename: image004.png
Last Modified: Fri Mar 30 07:53:23 CDT 2018

image004.png for
Printed Item: 25 of 25
Attachment 4 of 4

02

102

AMERICAN
OVERSIGHT

From: (b) (6) </o=va/ou=visn 08/cn=recipients/cn=(b) (6) >
To: Zenooz, Ashwini </o=va/ou=visn 21/cn=recipients/cn=(b) (6) >; Gunnar, William </o=va/ou=visn 12/cn=recipients/cn=v(b) (6) >; L(b) (6) </o=va/ou=vha office of information/cn=recipients/cn=(b) (6) >; (b) (6) </o=va/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=(b) (6) >
Cc: (b) (6) (SBG) </o=va/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=(b) (6) >; Kroupa, Laura (V15) </o=va/ou=visn 15/cn=recipients/cn=(b) (6) >; (b) (6) </o=va/ou=visn 22/cn=recipients/cn=(b) (6) >
Bcc:
Subject: FW: [EXTERNAL] (UPDATED) EHRM in the News: Thursday, March 8, 2018
Date: Thu Mar 08 2018 11:54:00 EST
Attachments: EHRM in the News - Thursday, March 8, 2018.docx
image001.png
image002.png

From: (b) (6) [USA]
Sent: Thursday, March 08, 2018 10:43:19 AM
To: (b) (6); (b) (6); (b) (6)
Cc: (b) (6)
Subject: [EXTERNAL] (UPDATED) EHRM in the News: Thursday, March 8, 2018

EHRM in the News

Thursday, March 8, 2018

EHRM News

Politico: 'We took a broken system and just broke it completely' (8 March 2018, Arthur Allen)

*President Donald Trump last year hailed a multibillion-dollar initiative to create a seamless digital health system for active duty military and the VA that he said would deliver "faster, better, and far better quality care." But the military's \$4.3 billion Cerner medical record system has utterly failed to achieve those goals at the first hospitals that went online.

*Technical glitches and poor training have caused dangerous errors and reduced the number of patients who can be treated, according to interviews with more than 25 military and Veterans Affairs health IT specialists and doctors, including six who work at the four Pacific Northwest military medical

facilities that rolled out the software over the past year.

*Bob Marshall, a health IT specialist at Madigan Army Medical Center, another early rollout site, blamed the poor start partly on the Pentagon acquisition office's inexperience with civilian record systems and the lack of a "sandbox" where clinicians could perfect the system before it was turned on.

*"The bottom line is ... the Cerner user build is immature and needs to be brought up to a functional level," said Bob Marshall, a health IT specialist at Madigan Army Medical Center. "There were some expectations at higher levels that this ... was an out-of-the-box solution that would work perfectly, but it didn't."

*Officials from Cerner and Leidos, the lead contractor on the project, acknowledge startup difficulties but said they're temporary. They said they are making fixes and physicians will get used to other changes.

*Despite the startup issues, which have been glossed over in public discussion of the project, the White House continues to make the overhaul of the military and VA medical records a centerpiece of its government reform efforts.

*"This was a huge win for our service," Jared Kushner told a health IT conference in Las Vegas on Tuesday, referring to Shulkin's decision last spring to use Cerner following consultations with Kushner's office. "The president wants to make interoperable health records available for all Americans."

Cerner News

Becker's Hospital Review: Centrus Health to use Cerner technology to create population health program (7 March 2018, Anuja Vaidya)

*Centrus Health, a clinically integrated network based in Kansas, will integrate Cerner solutions and technological tools to create a population health management program.

*Centrus Health includes numerous hospitals and providers in the region, including Shawnee (Kan.) Mission Health and The University of Kansas Health System in Kansas City.

*Centrus Health will deploy the Cerner HealthIntent population health management platform to coordinate care across the network. Centrus Health's 16,000-plus participants will be able to share data and work together. Cerner associates will also work to optimize the network's value-based contracts through technology.

*"Centrus Health and Cerner together have the unique opportunity to make a real impact on the quality and delivery of health care in the Kansas City metro area," said Zane Burke, president of Cerner.

Allscripts News

There were no recent news stories related to Allscripts

Epic News

There were no recent news stories related to Epic Systems

Owner: (b) (6) </o=va/ou=visn 08/cn=recipients/cn=(b) (6) >
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EHRM in the News

Thursday, March 8, 2018

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To: Zenooz, Ashwini </o=va/ou=visn 21/cn=recipients/cn=(b) (6)>; Gunnar, William </o=va/ou=visn 12/cn=recipients/cn=(b) (6)>; (b) (6) </o=va/ou=vha office of information/cn=recipients/cn=(b) (6)>; (b) (6) </o=va/ou=exchange administrative group (fydibohf23spdl)/cn=recipients/cn=(b) (6)>
Cc: Kroupa, Laura (V15) </o=va/ou=visn 15/cn=recipients/cn=(b) (6)>; (b) (6) </o=va/ou=exchange administrative group (fydibohf23spdl)/cn=recipients/cn=(b) (6)>; (b) (6) </o=va/ou=visn 22/cn=recipients/cn=(b) (6)>
Bcc:
Subject: FW: [EXTERNAL] (UPDATED) EHRM in the News: Wednesday, March 7, 2018
Date: Wed Mar 07 2018 10:59:09 EST
Attachments: EHRM in the News - Wednesday, March 7, 2018.docx
image001.png
image002.png

From: (b) (6)
Sent: Wednesday, March 07, 2018 9:49:15 AM
To: (b) (6) (b) (6) (b) (6)
Cc: (b) (6)
Subject: [EXTERNAL] (UPDATED) EHRM in the News: Wednesday, March 7, 2018

EHRM in the News

Wednesday, March 7, 2018

EHRM News

EHR Intelligence: MyHealthEData Initiative to Improve EHR Patient Data Access (6 March 2018, Kate Monica)

*CMS Administrator Seema Verma recently announced a new initiative from the Trump Administration — MyHealthEData — designed to improve EHR patient data access.

*According to an announcement from Verma during HIMSS18, the initiative is part of a larger effort to create a more patient-centric healthcare system.

*The initiative is intended to give patients more control of their own EHR data and will do this by

breaking down existing barriers to health data access and use. Patients will have access to their own EHRs through the device or application of their choice, stated CMS.

*Additionally, MyHealthEData will enable patients to choose the provider that best meets their needs and grant that provider secure access to the patient's EHRs.

Nextgov: Kushner Announces 'Whole of Government' Plan To Improve Health Tech (6 March 2018, Aaron Boyd)

*The Trump administration is set to begin a "whole of government" push toward digitizing medical health records and improving the interoperability of patient data, Jared Kushner, senior adviser to the president, said Tuesday.

*The White House—and the Office of American Innovation, led by Kushner—is making "citizen access to health records and interoperability a top priority," Kushner said during a keynote address at the annual Healthcare Information and Management Systems Society conference in Las Vegas.

*"The time is now to align every facet of the federal government and the private sector to ensure information is communicated and shared seamlessly. Simply put, interoperability is about our shared bottom line: saving lives," he said.

*He also said he was struck by the interoperability problems between the Defense and Veterans Affairs departments. The VA last summer announced its intention to restart its electronic health records efforts with a new vendor, Cerner, which manages the Defense Department's digital health records.

*"This was a huge win for our service members," Kushner said. "But the president is determined to make interoperability a reality for all Americans. This is an issue that impacts every hospital, care provider and patient in our country. Now that electronic health records have become digitized over the past decade, complete interoperability is the logical next step."

Cerner News

Cerner: National Coordination Center to Support VA EMR with Resources from Top US Health Care Organizations (6 March 2018)

*The founding members of the National Coordination Center's Department of Veterans Affairs (VA) Steering Committee today announced their commitment to help support the VA's 10-year implementation of a Cerner Millennium®-based EMR system.

*To help VA create a learning health system to support their role in integrated systems of care, thought leaders have joined the NCC's VA Steering Committee.

*The NCC VA Steering Committee will consist of experts from fields that will help mitigate risk to the planned EMR implementation and work to position the VA to deliver high-quality care.

*"Cerner is excited to work with the NCC and its esteemed group of academic leaders to create a lasting solution in support of the VA and our veterans," said Travis Dalton, senior vice president of Cerner Government Services. "Seamless data exchange across the vast network of VA medical facilities and with the commercial health care sector is our top priority."

EHR Intelligence: Cerner, NextGen Healthcare Expand Breadth of Health IT Solutions (6 March 2018, Kate Monica)

*Cerner will expand its health IT solution offerings through a collaboration with customer relationship

management provider Salesforce in an effort to improve patient and provider engagement.

*The Salesforce Health Cloud and Marketing Cloud solutions will be integrated into Cerner's population health management platform, HealtheIntent.

*Salesforce Health Cloud will enable healthcare organizations to collaborate more efficiently and better understand the needs of their patients for improved communication between providers, care teams, and their patients.

Allscripts News

MSN Money: Allscripts (MDRX) Launches Avenel to Revamp EHR Platform (7 March 2018)

*Allscripts Healthcare Solutions MDRX recently launched electronic health record (EHR) solution — Avenel — at the annual HIMSS conference. The following sessions at the conference will comprise individual demonstrations on Avenel.

*In a bid to revamp EHR, Allscripts has invested significantly in the Avenel user interface and created the app-like functionality, featuring tablet-friendly swipe-and-tap navigation with easy-to-configure dashboards. It also involved a great deal of speculation into client and industry needs.

Epic News

There were no recent news stories related to Epic Systems

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Filename: EHRM in the News - Wednesday, March 7, 2018.docx
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- * He also said he was struck by the interoperability problems between the Defense and Veterans Affairs departments. The VA last summer announced its intention to restart its electronic health records efforts with a new vendor, Cerner, which manages the Defense Department's digital health records.
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Cc: (b) (6) (ERPi) </o=va/ou=exchange administrative group (fydibohf23spdl)/cn=recipients/cn=(b) (6) >; (b) (6) </o=va/ou=va martinsburg/cn=recipients/cn=(b) (6) >
Bcc:
Subject: MedCity News article
Date: Wed Dec 13 2017 09:18:50 EST
Attachments:

Hi Team CMO – here is an article that was published yesterday, that I am sharing as FYI.

Also, for your awareness, (b) (6) has asked one of the PEO Comms contract support to pull EHRM news clips together daily moving forward; we will likely use the mailgroup that (b) (6) is working to establish, to share these with our team members, in the future. In the interim as those processes are being established, I am sending these to you for awareness.

3.2 - MedCity News: Three takeaways on the VA, VistA and government health IT (12 December, Erin Dietsche, 478k online visitors/mo; New York, NY)

A new study from the U.S. Government Accountability Office dug deeper into what's happening with the Department of Veterans Affairs and its quest to improve its health IT infrastructure. Meanwhile, an EHR interoperability summit involving top government officials has been the talk of the town.

Here are three takeaways regarding the report and the meeting.

Modernization costs

According to the GAO, the VA has attempted to update its EHR system — the Veterans Health Information Systems and Technology Architecture (or VistA) — numerous times over the past 20 years. These attempts include the iEHR program and the VistA Evolution program.

While the iEHR program set out to replace the separate systems used by the VA and the Department of Defense with a single system, the VistA Evolution program wanted to improve VistA with new capabilities and a different user interface.

From fiscal year 2011 to fiscal year 2016, the VA contracted with 138 vendors and dedicated more than \$1.1 billion to these two programs. The 15 main contractors that worked on the efforts cost the VA \$741 million.

Only recently did the department announce that it will switch to a Cerner EHR system instead of modernizing its legacy system.

FITARA-related efforts

The GAO report also touches on the Federal Information Technology Acquisition Reform Act, otherwise known as FITARA. Enacted by Congress in late 2014, it focuses on how the government purchases and managed technology.

The VA has worked toward consolidating its data centers and reported \$23.61 million in data center-related cost savings. But the progress isn't quite enough, as it "has fallen short of targets set by the Office of Management and Budget." On top of that, the VA doesn't anticipate more savings regarding data centers.

More on federal health IT

In other health IT news, a December 12 summit between a number of top officials has garnered the attention of the healthcare world.

Jared Kushner, President Donald Trump's son-in-law and the leader of the Office of American Innovation, will lead the event along with CMS Administrator Seema Verma. The meeting will focus on EHR interoperability, according to Politico.

A few other prominent folks will be there, including National Coordinator for Health IT Don Rucker, Intermountain Healthcare CEO Marc Harrison and CMO Officer Stan Huff, a representative from Cerner and The Sequoia Project CEO Mariann Yeager.

As Politico also pointed out, the summit does have ties to the goings-on of the VA. Earlier this year, Kushner boasted about how quickly the VA secured the Cerner deal.

According to leaked audio, Kushner claimed that with his assistance, the department was able to sort out a solution in a two-week time frame.

(b) (6)



U.S. Department
of Veterans Affairs



810 Vermont Ave NW
Washington DC 20420
www.va.gov

Daniel McGrath
American Oversight
1030 5th Street, NW
Suite B255
Washington, DC 20005

MAY 28 2019

Re: Freedom of Information Act Tracking Number **18-07440-F**

Dear Mr. McGrath,

This is an amended interim response to your Freedom of Information Act (FOIA) request to the Department of Veterans Affairs (VA) dated May 8, 2017, in which you requested all records reflecting communications (including emails, email attachments, text messages, messages on messaging platforms (such as Slack, GChat or Google Hangouts, Lync, Skype, or WhatsApp), telephone call logs, calendar entries/invitations, meeting notices, meeting agendas, informational material, draft legislation, talking points, any handwritten or electronic notes taken during any oral communications, summaries of any oral communications, or other materials) between 1) the Office of the Secretary, the Office of the Assistant Secretary for Information and Technology and the Chief Information Officer, or the Electronic Health Records Modernization (EHRM) Program Executive Office and 2) Isaac "Ike" Perlmutter, Bruce Moskowitz, or Jared Kushner".

On May 8, 2018 you amended your request to read as follows:

All records reflecting communications (including emails, email attachments, text messages, messages on messaging platforms (such as Slack, GChat or Google Hangouts, Lync, Skype, or WhatsApp), telephone call logs, calendar entries/invitations, meeting notices, meeting agendas, informational material, draft legislation, talking points, any handwritten or electronic notes taken during any oral communications, summaries of any oral communications, or other materials) between 1) political appointees and Senior Executive Service (SES) employees within the Office of the Secretary, the Office of the Assistant Secretary for Information and Technology and the Chief Information Officer and, the Electronic Health Records Modernization (EHRM) Program Executive Office and 2) Isaac "Ike" Perlmutter, Bruce Moskowitz, or Jared Kushner.

On May 17, 2018, you agreed to aggregate two of your requests as follows:

All emails, text messages and messages on messaging platforms (such as Slack, GChat or Google Hangouts, Lync, Skype, or WhatsApp) of political appointees³ and Senior Executive Service (SES) employees within 1) the Office of the Secretary, 2) the Office of the Assistant Secretary for Information and Technology and the Chief Information Officer and, 3) the Electronic Health Records Modernization (EHRM) Program Executive Office that contain any of the following terms:

- a. Moskowitz;
- b. Perlmutter;
- c. Ike;
- d. "Trump's friend";
- e. "Trump's Doctor";
- f. "POTUS friend";

- g. "POTUS's friend";
 - h. "POTUS' friend";
 - i. "POTUS doctor";
 - j. "POTUS's doctor";
 - k. "POTUS' doctor";
 - l. "President's friend";
 - m. "friend of POTUS";
 - n. "friend of President"; or
 - o. "friend of the President".
- All records reflecting communications (including emails, email attachments, text messages, messages on messaging platforms (such as Slack, GChat or Google Hangouts, Lync, Skype, or WhatsApp), telephone call logs, calendar entries/invitations, meeting notices, meeting agendas, informational material, draft legislation, talking points, any handwritten or electronic notes taken during any oral communications, summaries of any oral communications, or other materials) between 1) political appointees and Senior Executive Service (SES) employees within the Office of the Secretary, the Office of the Assistant Secretary for Information and Technology and the Chief Information Officer and, the Electronic Health Records Modernization (EHRM) Program Executive Office and 2) Isaac "Ike" Perlmutter, Bruce Moskowitz, or Jared Kushner.

Please provide all responsive records from May 15, 2017, to the date of the search.

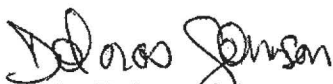
The FOIA Service received your request on May 7, 2018, and assigned it FOIA tracking number **18-07440-F**. Please refer to this number when communicating with the VA about this request.

OIT produced two-hundred and twenty (220) pages of responsive documents that were sent to you on March 25, 2019. After a second review of these documents OIT unredacted 5 of the 220 pages. These pages are: 25, 29, 83, 85, and 94.

We are still reviewing documents and will continue to make releases on a rolling basis until all responsive documents have been reviewed and released.

We appreciate your interest in the Department of Veterans Affairs. If you have any questions concerning this letter, you may contact Ms. Jacqueline Short of my staff at (202) 632-7426.

Sincerely,



Ms. Doloras Johnson
Director, VACO FOIA Service
Quality, Performance, and Risk (QPR)
Office of Information and Technology (OIT)

Enclosed

From: Blackburn, Scott R.
To: Zenooz, Ashwini; Short, John (VACO)
Subject: FW: [EXTERNAL] Re: VA EHR
Date: Friday, March 23, 2018 12:16:16 PM

I already sent to Windom and DepSec. I told Windom to get with the Secretary today to gauge his reactions.

Sent with Good (www.good.com)

From: Marc Sherman
Sent: Friday, March 23, 2018 9:47:39 AM
To: Blackburn, Scott R.
Cc: Bruce Moskowitz; DJS
Subject: [EXTERNAL] Re: VA EHR

Scott,

Thanks for inviting me to listen in on your calls this week with the subject matter experts. I was happy to make time to participate as requested and always happy to provide my thoughts for your consideration when requested.

I read carefully your email about the efforts to work out the holes raised by the experts. You are on the way to kicking off an exciting project with a highly respected Contractor/vendor and a VA team that has worked very hard; and I know everyone has the goal to build the best next generation system for the veterans' healthcare. However, there were several major issues raised in the calls this week with the technical and clinical experts that you try to explain away in your email as solved, but indeed are not according to the experts. These issues, they believe, will prevent a successful implementation and I fear come back to haunt this project and its overseers. I hate to be a naysayer, but I respectfully don't agree with some of your conclusions expressed in your email when I listen to the experts with whom you consulted; and the experts are in fact not swayed by the follow-up conversations with them. The experts are recommending a system for the VA that has various enhancements to today's standard system functionality. At a minimum, I heard those experts express their opinions that the contract dangerously lacks definitions, standards and a clear expression of this required, defined enhanced (non-standard) functionality (they articulate it much better than I). Failing to express this type of definitional clarity in the contract is an invitation to ambiguity, disputes and ultimate failure of purpose. The best "oversight and management of the contract" will not turn a contract lacking specificity into a vision of clarity. Including contractual clarity allows the Contractor to understand TODAY what is expected so that today it can confirm its agreement to provide the full functionality desired and have a better understanding of what is expected of them. Clarity in the contract is a healthy ingredient for the VA and the Contractor.

I would be delighted to be wrong and welcome a demonstration of where Section 5.1 of the contract provides this specificity that Drs. Cooper and Huff, for example, urged. In light of the system requirements that these experts say must be included, which are enhancements of today's standard deliverables, the contract language is ambiguous. You say that "risk cannot be 100% driven out of any transformation of this magnitude," a concept to which I subscribe. However, when you substitute this concept for clear, written and defined functionality, especially for a design that is expected to be unique in many respects, you are doomed to disappointment and conflict.

on some of the discussion and thought I would offer some reaction/feedback that still seems unsettled. I will outline my nighttime thoughts below in case you find them useful.

1. I thought that Dr. Cooper made a good case for inserting specific definitions and standards on the meaning and use of "interoperability," especially since that term has as many meanings in the industry as those who speak it. It is so easy for the contractor to proceed down a design path using one definition or standard while the users will require a totally different standard. That runs the risk of not being discovered until later, perhaps even up to implementation, a very costly result. Perhaps a similar problem (a seemingly big problem) that the DOD implementation faces now where the users are rebelling. Unfortunately, if this "gap" in definition is not discovered until IOC, it will be very difficult and very expensive to fix (ala the DOD problem). I agree with Dr. Cooper, why not set the critical definitions and standards in the contract (PWS) now and eliminate the chance for any confusion or ambiguity. It will pay dividends later in terms of less arguments, better initial design, happier user community, less overall cost, better healthcare delivery, etc. Then, with the standard fully defined and set in the original PWS, the mock-up test will be much sooner in time and much more complete the first time, allowing the users to provide input sooner and better, eliminating costly design mistakes from the beginning. The user community can tell you today what is needed to accomplish this "next generation" system that will be a model for the country and the future of healthcare (as Ms. Reel envisioned on the call last night). Why would you not want to tell the contractor the specifics of that now, in fairness to them, the VA, the patients and healthcare, so they can proceed with that standard from day one or express any concerns they may have now instead of in the future after costly design has occurred? Why would you not want to be specific in the contract to prevent ambiguity? Dr. Shulkin pushed back on Dr. Cooper's view as already accomplished in the PWS and cited Section 5 (I believe he said section 5.1.1) of the PWS. Dr. Cooper, as a physician user and not a technician, deferred on the effectiveness of the existing contract language to others, but commented that the CIO of MAYO read the contract and also did not think it adequately contained the right defining language to set out unambiguous definitions and standard. I have read the contract again last night and happen to agree, or am missing it. If I am wrong, it would be useful for someone to point me in the right direction.
2. I was also thinking about the current reported problems of the DOD implementation seemingly caused by a user (clinician) revolt over inadequacy (or unsuitability) for their needs. The VA runs that same risk. Perhaps that problem could be a benefit to your effort. Why not accumulate all of the user complaints/issues in the DOD implementation identified by the users and chart them out. Then identify which of those issues would be issues if they existed in the VA implementation and include them in the contract as definitional requirements. You have the benefit of knowing the failures in the very system upon which you are modeling your system...and you have an added advantage and opportunity to contractually prevent similar mistakes.
3. I have other thoughts as well that we should discuss, but these are the ones

Again, we believe the construct of the contract, and more importantly the proper oversight and management of the contract will greatly mitigate cost, schedule and performance concerns, as well as support the timely injection of technological advancements (e.g. cloud, APIs, etc.) at the appropriate pace and balance necessary to support our Veterans without jeopardizing our overall care pledge. Interoperability remains at the forefront of our concerns, and your comments, the MITRE study and various other external inputs contributing significantly to our RFP language and corresponding requirements. Interoperability will be a moving target for years to come, but our contract allows us to leverage the best of ideas of industry throughout the contract's life without incurring the exorbitant costs you have alluded to, as well as not be bound by potentially antiquated definitions. As recommended, an interoperability sandbox/test bed will be established during our Initial Operating Capabilities (IOC) implementation/deployment process to solidify the requisite interoperability requirements prior to full enterprise deployment. This is consistent with the desires of many of our external experts.

Change management, governance, training and communication remain critical and foundational elements of business transformation success. The program management office (PMO) will be the primary orchestrator of these strategies but will be calling for support from the entire VA enterprise to implement these practices in support of EHR modernization objectives.

Marc, thank you for everything. We are ready to take the next step. We hope you will take us up on our offer to be an advisor.

Scott

I thought that Dr. Cooper made a good case for inserting specific definitions and standards on the meaning and use of "interoperability," especially since that term has as many meanings in the industry as those who speak it. It is so easy for the contractor to proceed down a design path using one definition or standard while the users will require a totally different standard. That runs the risk of not being discovered until later, perhaps even up to implementation, a very costly result. Perhaps a similar problem (a seemingly big problem) that the DOD implementation faces now where the users are rebelling. Unfortunately, if this "gap" in definition is not discovered until IOC, it will be very difficult and very expensive to fix (ala the DOD problem). I agree with Dr. Cooper, why not set the critical definitions and standards in the contract (PWS) now and eliminate the chance for any confusion or ambiguity. It will pay dividends later in terms of less arguments, better initial design, happier user community, less overall cost, better healthcare delivery, etc. Then, with the standard fully defined and set in the original PWS, the mock-up test will be much sooner in time and much more complete the first time, allowing the users to provide input sooner and better, eliminating costly design mistakes from the beginning. The user community can tell you today what is needed to accomplish this "next generation" system that will be a model for the country and the future of healthcare (as Ms. Reel envisioned on the call last night). Why would you not want to tell the contractor the specifics of that now, in fairness to them, the VA, the patients and healthcare, so they can proceed with that standard from day one or express any concerns they may have now instead of in the future after costly design has occurred? Why would you not want to be specific in the contract to prevent ambiguity? Dr. Shulkin pushed back on Dr. Cooper's view as already accomplished in the PWS and cited Section 5 (I believe he said section 5.1.1) of the PWS. Dr. Cooper, as a physician user and not a technician, deferred on the

Cc: DJS

Subject: Re: [EXTERNAL] Re: Stan Huff

I agree that the call was very helpful. I spent the night after the call reflecting on some of the discussion and thought I would offer some reaction/feedback that still seems unsettled. I will outline my nighttime thoughts below in case you find them useful.

1. I thought that Dr. Cooper made a good case for inserting specific definitions and standards on the meaning and use of "interoperability," especially since that term has as many meanings in the industry as those who speak it. It is so easy for the contractor to proceed down a design path using one definition or standard while the users will require a totally different standard. That runs the risk of not being discovered until later, perhaps even up to implementation, a very costly result. Perhaps a similar problem (a seemingly big problem) that the DOD implementation faces now where the users are rebelling. Unfortunately, if this "gap" in definition is not discovered until IOC, it will be very difficult and very expensive to fix (ala the DOD problem). I agree with Dr. Cooper, why not set the critical definitions and standards in the contract (PWS) now and eliminate the chance for any confusion or ambiguity. It will pay dividends later in terms of less arguments, better initial design, happier user community, less overall cost, better healthcare delivery, etc. Then, with the standard fully defined and set in the original PWS, the mock-up test will be much sooner in time and much more complete the first time, allowing the users to provide input sooner and better, eliminating costly design mistakes from the beginning. The user community can tell you today what is needed to accomplish this "next generation" system that will be a model for the country and the future of healthcare (as Ms. Reel envisioned on the call last night). Why would you not want to tell the contractor the specifics of that now, in fairness to them, the VA, the patients and healthcare, so they can proceed with that standard from day one or express any concerns they may have now instead of in the future after costly design has occurred? Why would you not want to be specific in the contract to prevent ambiguity? Dr. Shulkin pushed back on Dr. Cooper's view as already accomplished in the PWS and cited Section 5 (I believe he said section 5.1.1) of the PWS. Dr. Cooper, as a physician user and not a technician, deferred on the effectiveness of the existing contract language to others, but commented that the CIO of MAYO read the contract and also did not think it adequately contained the right defining language to set out unambiguous definitions and standard. I have read the contract again last night and happen to agree, or am missing it. If I am wrong, it would be useful for someone to point me in the right direction.
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From: Blackburn, Scott R.
Sent: Friday, March 23, 2018 9:16:15 AM
To: Zenooz, Ashwini; Short, John (VACO)
Subject: FW: [EXTERNAL] Re: VA EHR

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Sent with Good (www.good.com)

From: Marc Sherman
Sent: Friday, March 23, 2018 9:47:39 AM
To: Blackburn, Scott R.
Cc: Bruce Moskowitz; DJS
Subject: [EXTERNAL] Re: VA EHR

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I read carefully your email about the efforts to work out the holes raised by the experts. You are on the way to kicking off an exciting project with a highly respected Contractor/vendor and a VA team that has worked very hard; and I know everyone has the goal to build the best next generation system for the veterans' healthcare. However, there were several major issues raised in the calls this week with the technical and clinical experts that you try to explain away in your email as solved, but indeed are not according to the experts. These issues, they believe, will prevent a successful implementation and I fear come back to haunt this project and its overseers. I hate to be a naysayer, but I respectfully don't agree with some of your conclusions expressed in your email when I listen to the experts with whom you consulted; and the experts are in fact not swayed by the follow-up conversations with them. The experts are recommending a system for the VA that has various enhancements to today's standard system functionality. At a minimum, I heard those experts express their opinions that the contract dangerously lacks definitions, standards and a clear expression of this required, defined enhanced (non-standard) functionality (they articulate it much better than I). Failing to express this type of definitional clarity in the contract is an invitation to ambiguity, disputes and ultimate failure of purpose. The best "oversight and management of the contract" will not turn a contract lacking specificity into a vision of clarity. Including contractual clarity allows the Contractor to understand TODAY what is expected so that today it can confirm its agreement to provide the full functionality desired and have a better understanding of what is expected of them. Clarity in the contract is a healthy ingredient for the VA and the Contractor.

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U.S. Department
of Veterans Affairs



810 Vermont Ave NW
Washington DC 20420
www.va.gov

Daniel McGrath
American Oversight
1030 5th Street, NW
Suite B255
Washington, DC 20005

JUN 04 2019

Re: Freedom of Information Act Tracking Number **18-07440-F**

Dear Mr. McGrath,

This is an interim response to your Freedom of Information Act (FOIA) request to the Department of Veterans Affairs (VA) dated May 8, 2018, in which you requested all records reflecting communications (including emails, email attachments, text messages, messages on messaging platforms (such as Slack, GChat or Google Hangouts, Lync, Skype, or WhatsApp), telephone call logs, calendar entries/invitations, meeting notices, meeting agendas, informational material, draft legislation, talking points, any handwritten or electronic notes taken during any oral communications, summaries of any oral communications, or other materials) between 1) the Office of the Secretary, the Office of the Assistant Secretary for Information and Technology and the Chief Information Officer, or the Electronic Health Records Modernization (EHRM) Program Executive Office and 2) Isaac "Ike" Perlmutter, Bruce Moskowitz, or Jared Kushner".

On May 8, 2018 you amended your request to read as follows:

All records reflecting communications (including emails, email attachments, text messages, messages on messaging platforms (such as Slack, GChat or Google Hangouts, Lync, Skype, or WhatsApp), telephone call logs, calendar entries/invitations, meeting notices, meeting agendas, informational material, draft legislation, talking points, any handwritten or electronic notes taken during any oral communications, summaries of any oral communications, or other materials) between 1) political appointees and Senior Executive Service (SES) employees within the Office of the Secretary, the Office of the Assistant Secretary for Information and Technology and the Chief Information Officer and, the Electronic Health Records Modernization (EHRM) Program Executive Office and 2) Isaac "Ike" Perlmutter, Bruce Moskowitz, or Jared Kushner.

On May 17, 2018, you agreed to aggregate two of your request as follows:

All emails, text messages and messages on messaging platforms (such as Slack, GChat or Google Hangouts, Lync, Skype, or WhatsApp) of political appointees³ and Senior Executive Service (SES) employees within 1) the Office of the Secretary, 2) the Office of the Assistant Secretary for Information and Technology and the Chief Information Officer and, 3) the Electronic Health Records Modernization (EHRM) Program Executive Office that contain any of the following terms:

- a. Moskowitz;
 - b. Perlmutter;
 - c. Ike;
 - d. "Trump's friend";
 - e. "Trump's Doctor";
 - f. "POTUS friend";
 - g. "POTUS's friend";
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 - l. "President's friend";
 - m. "friend of POTUS";
 - n. "friend of President"; or
 - o. "friend of the President".
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Please provide all responsive records from May 15, 2017, to the date of the search. The FOIA Service received your request on May 7, 2018, and assigned it FOIA tracking number **18-07440-F**. Please refer to this number when communicating with the VA about this request.

On March 25, 2019, we released two hundred and twenty (220) pages that specifically addressed your request for information.

On May 28, 2019, we released 5 pages of an amended interim response.

We are releasing six hundred and seventy-nine (679) pages of responsive documents on CD at no cost to you.

We are withholding information pursuant to FOIA exemption 5, [5 U.S.C. § 552 (b)(5)], which protects from disclosure all inter-agency or intra-agency memorandums or letters which would not be available by law to a party other than an agency in litigation with the agency. We are withholding one hundred and sixty-six pages (166) pages under the above exemption.

FOIA exemption 6 permits an Agency to withhold from disclosure personnel and medical files and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy. The information withheld, such as names, are of a type that the privacy interest of the individual(s) to whom this information belongs outweighs any public interest in disclosure of this information. We are withholding forty-eight (48) pages under the above exemption.

We are still reviewing documents and will continue to make releases on a rolling basis until all responsive documents have been reviewed and released.

We appreciate your interest in the Department of Veterans Affairs. If you have any questions concerning this letter, you may contact Ms. Jacqueline Short of my staff at (202) 632-7426.

Sincerely,



Ms. Doloras Johnson
Director, VACO FOIA Service
Quality, Performance, and Risk (QPR)
Office of Information and Technology (OIT)

Enclosed

From: Cashour, Curtis
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=dba510634baa46a085e28c62c254
093f-cashour, cu>
To: Sandoval, Camilo J.
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=91cab99711134d5898a778ab4685
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administrative group
(fydibohf23spdlt)/cn=recipients/cn=b42e3e7200d24bc6aeafc5fd36be
8d2b-selnick, da>
Cc: Ulliyot, John
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=c02392d86764480bb90e3854a5f3
cbbb-ullyot, joh>
Bcc:
Subject: // approval needed ASAP today // Perlmutter, Moskowitz and Sherman
Date: Mon Nov 26 2018 13:27:51 EST
Attachments:

Folks – please see below from ProPublica. Are you OK with the following response?

Although his predecessors may have done things differently, Sec. Wilkie has been clear about how he does business. No one from outside the administration dictates VA policies or decisions – that’s up to Sec. Wilkie and President Trump. Period.

Q: Why was Darin Selnick the point person on the Apple collaboration?

A: We refer you to former VA employee David Shulkin for comment since this happened on his watch. We know you are in contact with him.

Q: What ethics official approved of OIT beginning work on Dr. Moskowitz’s app, and what was the justification? What ethics official approved of OIT beginning work on Dr. Moskowitz’s app, and what was the justification?

A: The premise of your question is false. VA did not begin work on the app.

Q: Why did Selnick introduce Dr. Moskowitz’s son to his contacts at Apple?

A: We refer you to former VA employee David Shulkin for comment since this happened on his watch. We know you are in contact with him.

Q: What became of Peter O'Rourke's effort to "salvage" the Apple collaboration, as conveyed in a March 8, 2018, email?

A: We refer you to former VA employee David Shulkin for comment since this happened on his watch. We know you are in contact with him.

Q: What is the current status of the collaboration with Apple on the data exchange?

A: VA is in frequent contact with the private sector on how companies can work together on improving services to our nation's Veterans, but we have no announcements at this time with respect to any particular company or group of companies.

Q: Why did the VA organize a medical device registry summit, even though the VA already had a 99 percent effective system for product recalls, and the FDA already has NEST?

A: VA organized the Medical Device Registry Summit to bring together industry and academic leaders, as well as sister-agency experts to map out a strategy for launching the largest medical device-implant tracking program in the nation. The department is now looking to expand that collaboration to include the Food & Drug Administration and the Centers for Medicare and Medicaid Services, as well as VA's community care partners.

Medical devices are a \$170 billion business, accounting for 6 percent of U.S. health spending in 2013, and implantable device sales are projected to reach \$74 billion this year.

Given the large and expanding role of medical devices in modern health care, it's important to know what works best for patients.

The next steps for implementing a registry are working to ensure it would incorporate key features that enable quality measurement and outcome comparisons, patient safety monitoring, faulty-device recalls and patient notifications, and overall tracking and clinical follow-up.

Q: In Peter O'Rourke's Feb. 28, 2018, email saying, "I will protect our conversations from yesterday and as instructed by the Secretary last night, not discuss the content with any of the individuals what were mentioned," who and what is he referring to?

A: We refer you to former VA employee David Shulkin for comment since this happened on his watch. We know you are in contact with him.

Q: On Feb. 28, 2018, Dr. Moskowitz wrote, "The emergency 'committee' is mental health and that should be the first one to get right and move ASAP. I need to know all existing committees and initiatives on a chart. I have to pull in a significant number of assets to get boots on the ground to actually give timely care. I will need you to contact besides our academic partners, the following, U of

PENN, U. OfChicago,UCLA, U of SanFrancisco, Stanford, Columbia, the Mack Center of technological innovation, the Bloomberg school of public health and Ondrea Gleason MD head of American Association of Chairs of Psychiatry. This committee will need a direct working relationship with Telemedicine, the Choice Program to get the job done. They will need the authority to seep away any beuqacratc process that slows the initiative.” Peter O’Rourke replied, “I will begin a project plan and develop a timeline for action.” What initiative were they discussing and what became of it?

A: We refer you to former VA employee David Shulkin for comment since this happened on his watch. We know you are in contact with him.

Q: What was the purpose of the “Requested Names” that Dr. Moskowitz sent to Peter O’Rourke on March 9, 2018?

A: We refer you to former VA employee David Shulkin for comment since this happened on his watch. We know you are in contact with him.

Q: On the tracker circulated by Camilo Sandoval on March 6, 2018, why is CIO listed as one of the topics? Why was Bruce Moskowitz involved in screening applicants for CIO?

A: We refer you to former VA employee David Shulkin for comment since this happened on his watch. We know you are in contact with him.

Curt Cashour

Press Secretary

Department of Veterans Affairs

202-461-7388

Curt.Cashour@va.gov

@curtcashour

From: Isaac Arnsdorf [mailto:Isaac.Arnsdorf@propublica.org]
Sent: Monday, November 26, 2018 10:13 AM
To: Cashour, Curtis <Curt.Cashour@va.gov>
Cc: Snyder, Jill <Jill.Snyder@va.gov>
Subject: [EXTERNAL] Perlmutter, Moskowitz and Sherman

Hi Curt,

Hope you had a nice holiday.

I'm writing a follow-up article about the influence of Ike Perlmutter, Bruce Moskowitz and Marc Sherman based on the additional documents that the agency released last week. My questions are:

1. After meeting Perlmutter, Moskowitz and Sherman for the first time in April, why did Secretary Wilkie email them to say, "No matter how long I am here, there is a template in place based on your efforts to move this institution out of the Industrial Age"? What did he mean by that?
2. How is saying they provided a "template" consistent with the Secretary's repeated assertions of independence from Perlmutter, Moskowitz and Sherman?
3. Why was this sentence redacted under FOIA exemption b5 when the email was originally released to me?
4. Why was Marty Steele at the April meeting at Mar-a-Lago?
5. Why did Perlmutter, Moskowitz and Sherman review the Cerner contract before it was signed? What relevant expertise did they have to offer?
6. What ethics official approved their reviewing the contract, and what was the justification?
7. Why was Darin Selnick the point person on the Apple collaboration?
8. On May 18, 2017, why did Selnick say, "The VA staff has limited knowledge and experience, which is why you and the centers are so important to help the VA move forward"?
9. What ethics official approved of OIT beginning work on Dr. Moskowitz's app, and what was the justification?
10. Why did Selnick introduce Dr. Moskowitz's son to his contacts at Apple?
11. Why did the VA start working on Moskowitz's app even though OIT identified significant problems with its usability, functionality and scalability?
12. What became of Peter O'Rourke's effort to "salvage" the Apple collaboration, as conveyed in a March 8, 2018, email?
13. What is the current status of the collaboration with Apple on the data exchange?
14. Why did the VA organize a medical device registry summit, even though the VA already had a 99 percent effective system for product recalls, and the FDA already has NEST?
15. What was the total cost of the summit?
16. Why did Dr. Moskowitz and Aaron participate in weekly planning calls? What were their roles and tasks?
17. On April 10, 2018, why did SreyRam Kuy say she "owed" Dr. Moskowitz a budget for the medical device registry summit? Why was it appropriate for him to "edit" a government budget?
18. What ethics official approved Dr. Moskowitz's role in the summit and what was the justification?
19. What did it mean that Dr. Moskowitz's foundation was identified as a "private interest" in May 10, 2018, briefing materials for the secretary?
20. In Peter O'Rourke's Feb. 28, 2018, email saying, "I will protect our conversations from yesterday and as instructed by the Secretary last night, not discuss the content with any of the individuals what were mentioned," who and what is he referring to?
21. On Feb. 28, 2018, Dr. Moskowitz wrote, "The emergency 'committee' is mental health and that should be the first one to get right and move ASAP. I need to know all existing committees and initiatives on a chart. I have to pull in a significant number of assets to get boots on the ground to actually give timely care. I will need you to contact besides our academic partners, the following, U of PENN, U. Of Chicago, UCLA, U of San Francisco, Stanford, Columbia, the Mack Center of technological innovation, the Bloomberg school of public health and Ondrea Gleason MD head of American Association of Chairs of Psychiatry. This committee will need a direct working relationship with Telemedicine, the Choice Program to get the job done. They will need the authority to seep away any beuqacratic process that slows the initiative." Peter O'Rourke replied, "I will begin a project plan and develop a timeline for action." What initiative were they discussing and what became of it?
22. What was the purpose of the "Requested Names" that Dr. Moskowitz sent to Peter O'Rourke on March 9, 2018?

23. Who is the Under Secretary candidate from Mayo who Dr. Moskowitz recommended to O'Rourke on July 16, 2018?
24. Why is O'Rourke back at VA?
25. On the tracker circulated by Camilo Sandoval on March 6, 2018, why is CIO listed as one of the topics? Why was Bruce Moskowitz involved in screening applicants for CIO?

We're planning to publish as soon as tomorrow.

Thanks,

Isaac

Isaac Arnsdorf

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From: None
To: Rippen, Helga E.
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=9f4750bb3360412c938e06fa108d
9d20-rippen, hel>
Cc: Tibbits, Paul A.
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=8c2525e5054a458e9733c5cf6bde
c39e-tibbits, pa>; Cussatt, Dominic (SES)
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=1079be15bc2244278f497508d265
f041-cussatt, do>; James, Bill </o=va/ou=exchange
administrative group
(fydibohf23spdlt)/cn=recipients/cn=vacojamesb2>; Hume, Charles
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=6213b34d4ae94ee6883292ae3f5c
b652-hume, charl>; Evans, Neil C </o=exchangelabs/ou=exchange
administrative group
(fydibohf23spdlt)/cn=recipients/cn=bf3772a111e64e90a4ec5f819140
1933-evans, neil>
Bcc:
Subject: FW: [EXTERNAL] Re: Meeting between Dr. Tibbits and Aneesh Chopra to discuss
open API pledge
Date: Sun Nov 04 2018 15:47:00 EST
Attachments: VA EHRM Interoperability-Mitre- Report Jan 2018 _Redacted_FINAL.pdf

Helga,
Can you lead an internal meeting for us to discuss recommendations below with internal VA
stakeholders.

- 1.FHIR First Policy
- 2.Apple Health API Rules
- 3.

From: Aneesh Chopra (b)(6) [redacted]@carejourney.com]
Sent: Sunday, November 04, 2018 3:18 PM
To: Wine, Marc <Marc.Wine@va.gov>
Cc: Tibbits, Paul A. <Paul.Tibbits@va.gov>; Sartin, Shannon (CMS/OA) (b)(6) [redacted]@cms.hhs.
gov>; Mugge, Alexandra M. (CMS/CCSQ) (b)(6) [redacted]@cms.hhs.gov>; Soundararajan, Jude
(b)(6) [redacted]@ssa.gov>; Worthington, Charles <Charles.Worthington@va.gov>; Sandoval,
Camilo J. <Camilo.Sandoval@va.gov>; James, Bill <Bill.James@va.gov>; (b)(6) [redacted]@ssa.gov
Subject: [EXTERNAL] Re: Meeting between Dr. Tibbits and Aneesh Chopra to discuss open API pledge

Marc, thanks for the summary!

Paul - it was terrific seeing you again, and thanks for hosting all of us! Here's my summary, if useful:

1) "FHIR-first" policy: I'll defer to Shannon/Alex but there is likely more information to come from CMS
on how it intends to leverage open APIs to communicate with the care delivery system, and to regulate
where appropriate. My suggestion was to establish a policy similar to our "cloud-first" approach back in
2010 whereby all the various sub-departments within the VA know that when starting a new interop
project, or investing more in an existing one, that it pursue an "API-first" evaluation to gauge feasibility

before relying on whatever legacy method is under way.

This is the direction of 21st Century Cures, and will likely be the focus of the forthcoming ONC information blocking rules. We know that existing API rules are working with respect to Apple Health's experience. They have published a list of every site where they have established a FHIR-based connection (<https://support.apple.com/en-us/HT208647>), which means any consumer app can follow without additional burden. As you likely know, Apple pays NOTHING to connect to these sites; the health systems pay NOTHING to connect with Apple (presuming they have "turned on" the 2015 CEHRT edition as required to meet CMS/ONC rules); and the consumer, of course, pays NOTHING to authorize the transmission.

The FHIR Argonaut Project technical specifications allow physician access, but are NOT required in regulation (as of now). The "bulk access" specifications are ready for testing (ONC has funded a project with Boston Children's - <https://www.hhs.gov/about/news/2018/09/26/hhs-announces-leap-health-it-winner.html>).

2) Execute the Cerner Contract's Open Data Model Provisions: Now that the MITRE report is public, you can see all of the recommendations re: accelerating API standards development (attached). But key provisions that are in the contract have NOT been executed, including:

- publishing Cerner's data model in the NIH/national library of medicine (as Kaiser did with CMT - https://www.nlm.nih.gov/research/umls/cmt/cmt_faq.html)
- engaging the Open API Pledge partners in prioritizing use cases for standards development/acceleration.
- articulating how Cerner intends to make the work it is doing for the VA available to non-VA Cerner clients to lower the costs of future standards adoption/use.

3) Start building SMART Apps: presuming you can adopt/scale up your "Digital Veteran API Gateway" de-coupled from the timeline of the Cerner implementation, then you can do any of the following we discussed:

- Train VA employees for FHIR certification (here's the online course that started last week - http://www.hl7.org/events/fhir_fun.cfm)
- leverage the "micro-purchasing" framework to FHIR-enable popular VISTA apps like the JLV (<https://doi.org/10.1007/s11606-018-4708-z>), or CART-CL (https://www.hsrdr.research.va.gov/for_managers/stories/cart-cl.cfm)
- Direct Leidos/Epic to open up the Scheduling API consistent with the Argonaut Specs so third party apps can build tools to help veterans access community care (<https://open.epic.com/Scheduling/FHIR>); and in return, API pledgees like Trinity might reciprocate in the Columbus, OH market.

I look forward to our discussion in a couple of weeks!

Regards,
Aneesh Chopra
President
(703) 672-1315 | CareJourney.com

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On Fri, Nov 2, 2018 at 12:12 PM Wine, Marc <Marc.Wine@va.gov> wrote:
Aneesh, Jude, Drew, Alexandra, Shannon, Paul and Bill;

~ A note to say thank you for yesterday's talks on Open API approach with our office.

"The API pledge encourages health-care providers to commit to work collaboratively with VA to increase the mapping pace of health data to industry standards, including the current and future versions of Fast Healthcare Interoperability Resources (FHIR)."

Sharing some highlight points or ideas from discussion, more ahead; plus, feel free to add, comment, further guidance or input.

*VA is Argonaut Project participant. VA Argonaut Project participant.

[http://www.hl7.org/documentcenter/public_temp_51339323-1C23-BA17-](http://www.hl7.org/documentcenter/public_temp_51339323-1C23-BA17-0C8BC8A7320A4529/wg/argonaut/Argonaut%20Project%20Charter-12%20Dec%202014-v3.pdf)

[0C8BC8A7320A4529/wg/argonaut/Argonaut%20Project%20Charter-12%20Dec%202014-v3.pdf](http://www.hl7.org/documentcenter/public_temp_51339323-1C23-BA17-0C8BC8A7320A4529/wg/argonaut/Argonaut%20Project%20Charter-12%20Dec%202014-v3.pdf)

*VA can encourage standards development.

The purpose of the Argonaut Project is to rapidly develop a first-generation FHIR-based API and Core Data Services specification to enable expanded information sharing for electronic health records and other health information technology based on Internet standards and architectural patterns and styles.

*API standards, priority use case with SMART FHIR Vet Suicide Use Case.

*Open API for suicide information can be shared across healthcare in community.

*VA needs to finish the data model, start with a baseline data model.

*Place data model within Library of Medicine repository as open availability.

*VA can encourage standards development.

*API standards, priority use case with SMART FHIR Vet Suicide Use Case.

*Open API for suicide information can be shared across healthcare in community.

*VA needs to finish the data model, start with a baseline data model.

*Place data model within Library of Medicine repository as open availability.

*SSA wants to ensure ongoing sharing clinical data for SSA claims disability determination.

*FHIR Online Scheduling is online on Columbus, Ohio. FHIR questionnaire, online scheduling, Vets shared patient care, VA should adopt FHIR provider directory.

*VA DOD JVL interface could be provided through app environment.

*Cloud available semantic interoperability tools well available healthcare arena.

*VistA functions easily convertible to FHIR Open Apps platforms. Several Apps could be built from VistA, was mentioned physicians in the private sector Like VistA; suggested train VA programmers who have MUMPS skills, to transform programming, changing EHRM environment.

Again, many thanks.

-----Original Appointment-----

From: Tibbits, Paul A.

Sent: Monday, October 22, 2018 9:41 AM

To: Tibbits, Paul A.; Aneesh Chopra; Wine, Marc; Sartin, Shannon (CMS/OA); Mugge, Alexandra M. (CMS/CCSO); Soundararajan, Jude

Cc: (b)(6)@navhealth.com; Myklegard, Drew; Worthington, Charles; Sandoval, Camilo J.; James, Bill; Luther, Suzanne

Subject: Meeting between Dr. Tibbits and Aneesh Chopra to discuss open API pledge

When: Thursday, November 01, 2018 12:00 PM-1:00 PM (UTC-05:00) Eastern Time (US & Canada).

Where: VACO Room 350, 810 Vermont Avenue, NW, Washington, DC 20420

When you get to the building and check in with security, tell them that you are here to see me, Jonathan McBride. They will call me to come and pick you up. 202-461-4419. thanks! JMcB

.....

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English (United States)
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Conference ID: (b)(6) (same as access code above)
Forgot your dial-in PIN? | Help

PLEASE NOTE WE HAVE NEW PHONE NUMBERS You might want to make your attendees aware of the change.

[!OC([1033])!]
.....

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Document ID: 0.7.1705.733962-000001

Owner: None

Filename: VA EHRM Interoperability-Mitre- Report Jan 2018 _Redacted_FINAL.pdf

Last Modified: Sun Nov 04 14:47:00 CST 2018

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Department of Veterans Affairs Electronic Health Modernization

Request for Proposal Interoperability Review Report



Authors: Jay J. Schnitzer, M.D., Ph.D.

(b)(6)

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Document Number: MTR180033

Authors: Jay J. Schnitzer, M.D., Ph.D.

(b)(6)

**McLean, VA
January 2018**

Sponsor:
Department of Veterans Affairs

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VA EHRM RFP Interoperability Review Report

January 31, 2018

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VA-18-0298 and VA-18-0299-H-000014

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Executive Summary

This Review Report presents responses to three requests from the Department of Veterans Affairs (VA) to MITRE related to the topic of interoperability within the VA Electronic Health Record Modernization Request for Proposal:

- I. Conduct an external Interoperability Review Panel to review the interoperability language in the existing Request for Proposal (RFP),
- II. Engage an independent and unbiased legal expert to identify the specific changes to the RFP language necessary to implement the recommendations from the Interoperability Review Panel, and
- III. Visit the University of Pittsburgh Medical Center to understand the existing operational multi-vendor solution and interoperability solutions for applicability and scalability to the VA.

I. Interoperability Review Panel

In support of the Secretary of Veterans Affairs, David J. Shulkin, M.D., The MITRE Corporation convened and hosted a VA Electronic Health Record Modernization (EHRM) Request for Proposal (RFP) Interoperability Review Panel on January 5, 2018, at MITRE's McLean headquarters. The invited external senior electronic health record (EHR) interoperability subject matter experts (the Panel) reviewed the interoperability language in the existing RFP and developed joint suggestions and recommendations for VA to consider for incorporation to support the successful execution of a new commercial EHR contract with industry. The Panel affirmed that the primary goal should be seamless Veteran-centric healthcare achieved through true EHR interoperability. Achieving this goal rests on three overarching principles that should be supported by interoperability language in the RFP: 1) free and open access to data, 2) an ecosystem that provides fair access to third parties by creating a level playing field, and 3) a seamless Veteran and health provider (clinician) experience. Four categories of recommendations from the Panel (the first three to the interoperability language in the RFP, and the fourth for future VA contracts) will enable VA to realize this goal on the basis of the underlying principles: 1) commit to full VA-Department of Defense (DoD) interoperability, 2) leverage current and future standards, 3) commit to open, standards-based application programming interfaces (APIs), and 4) use Care in the Community contracts to foster interoperability.

For the first category (commit to full VA-DoD interoperability), the Panel agreed that the Determination and Findings signed by Secretary Shulkin on June 1, 2017, represented the correct approach to interoperability within VA and between VA and DoD. The Panel strongly endorsed the proposed VA "API Gateway" language. The most important specific recommendations included:

- Define the degree of interoperability the solution will provide, ranging from basic file sharing to fully interchangeable, integrated and functionally identical patient records.

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Suggest that the Contractor conduct an annual Interoperability Self-Assessment against current and future standards that shall be specified by the VA; and

- The contract language should include the following elements:
 - performance measures to hold Cerner accountable for reducing the administrative burden in clinician workflow with the objective of increasing efficiency,
 - ability for bulk data export based on standards, with no proprietary formats (e.g., Flat FHIR [Fast Healthcare Interoperability Resources]), and
 - “push” capability to insert patient data back into the VA EHR / Cerner database.

For the second category (leverage current and future standards), the following specific recommendations were among the most important:

- Require that Cerner implement all standards as defined by VA, current and future,
- Engage Cerner as an advocate of the VA and DoD position in all relevant standards-making bodies, and
- Ensure that VA and Veterans have complete access to data.

For the third category (commit to open, standards-based APIs), the Panel voiced the following recommendations:

- Establish clear publishing and access service requirements,
- Provide a VA application platform that supports APIs from third party providers with no barrier to entry, and
- Require implementation of clinical decision support (CDS) Hooks to invoke decision support from within a clinician's EHR workflow.

The body of this report contains multiple additional specific recommendations.

II. Recommendations for RFP Changes

MITRE engaged Morrison & Foerster, LLP as the independent and unbiased legal expert to identify the specific changes to the RFP language necessary to implement the recommendations from the Interoperability Review Panel. Appendix C presents all recommended changes to the RFP.

III. Observations from University of Pittsburgh Medical Center Site Visit

A delegation from VA and MITRE traveled to Pittsburgh, Pennsylvania, on January 19, 2018, for a meeting with representatives from University of Pittsburgh Medical Center (UPMC) Enterprises to discuss aspects of EHR interoperability that UPMC has successfully implemented over the past several years. The report includes an overview of those practices.

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IV. Closing Thoughts and Suggested Next Steps

The Panelists noted that VA cannot achieve true future EHR interoperability through the Cerner RFP alone, or through technology alone. The state of practice today shares only a small portion of available patient data. For VA to succeed in the future, multiple other components must be present and aligned: innovation, policy, standards, customer buy-in, and legislation, to name a few.

The following next steps are recommended for VA consideration:

1. Complete the RFP revisions, conduct appropriate negotiations with the Contractor expeditiously, and complete the contract process as planned. Stand firm during negotiations to maximize ease of access to data and data models for building third party APIs, applications, and services for future community innovations.
2. Continue to work with other federal government agencies and departments with similar interoperability interests and concerns, including, but not limited to, the White House, DoD, Food and Drug Administration (FDA), Centers for Medicare and Medicaid Services (CMS), Office of the National Coordinator for Health Information Technology (ONC), and other parts of the Department of Health and Human Services, to align approaches to EHR interoperability and the development and support of standards government-wide.
3. Support future innovation approaches, including concepts such as an Interoperability Laboratory and outreach to the broader innovation ecosystem (major medical centers, academia, traditional and non-traditional healthcare providers, startups, individual entrepreneurs, others). It is critical to align the innovations planned in VA's Digital Veterans Platform to the VA EHR innovation efforts to ensure consistent continuous improvements to clinician and Veteran health experiences.
4. Create an External Review Panel to provide expert continuous guidance, review, and feedback over the course of the implementation, to help capture best practices from the expert community going forward. Conduct ongoing demonstrations of end-to-end Veteran use cases requiring data sharing across organizational boundaries to validate improvements in Veteran healthcare and reduction of burden for healthcare providers. VA and Contractor will ensure that Federal Advisory Committee Act (FACA) guidelines are followed in leveraging any external review panels.

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Background

The Department of Veterans Affairs (VA) plans to establish seamless care for Veterans throughout the health care provider market. Seamless care requires interoperability between the Department of Defense (DoD), VA, VA affiliates, community partners, electronic health record (EHR) providers, healthcare providers, and vendors. VA directed The MITRE Corporation to independently review the capability of Cerner's proposed EHR solution to seamlessly transmit health records between EHR systems supporting healthcare providers who both use and contribute patient data to a Veteran's health record, to include Veterans Choice Program (VCP) community-care service providers and VA affiliates. This Review Report presents responses to three requests:

- I. Conduct an external Interoperability Review Panel to review the interoperability language in the existing Request for Proposal (RFP),
- II. Engage an independent and unbiased legal expert to identify the specific changes to the RFP language necessary to implement the recommendations from the Interoperability Review Panel, and
- III. Visit the University of Pittsburgh Medical Center to understand the existing operational multi-vendor solution and interoperability solutions for applicability and scalability to VA.

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I. Interoperability Review Panel

Introduction

In support of the Secretary of Veterans Affairs, David J. Shulkin, M.D., MITRE convened and hosted a VA Electronic Health Record Modernization (EHRM) Request for Proposal (RFP) Interoperability Review Panel on January 5, 2018, at MITRE's McLean, VA headquarters. MITRE invited external senior EHR interoperability subject matter experts (hereafter referred to as Panelists) to review the interoperability language in the existing RFP and to develop joint suggestions and recommendations for VA to consider incorporating into the RFP to support the successful execution of a new commercial EHR contract with industry. Eleven Panelists took part in person, and several senior government executives observed the process (see Appendix A for the full list of participants).

Goal

The Interoperability Review Panel sought to provide Secretary Shulkin and his senior leadership team with insights into key best practices and guidance from national experts regarding EHR interoperability. The Panel evaluated the corresponding language in the draft RFP based on successful business transformations and implementations of a new commercial EHR system across a distributed hospital and provider network. This section of the report summarizes the outcome of the Panel: expert recommendations that will inform VA's interoperability contract language. The document also provides actionable and specific best practice recommendations and rationales to enable successful acquisition and implementation of EHR interoperability.

Methodology/Approach

The first part of the session, which lasted for five hours, was conducted as a fish-bowl exercise and was guided by Chatham House Rule. The Panelists sat at a center table, with VA and other government observers sitting at surrounding tables. The second part, which lasted two hours, consisted of a summary debrief to the Secretary and senior VA leadership. The Secretary could ask questions and engage with the Panel throughout the second session. MITRE moderated the session to elicit inputs from all Panelists and to drive alignment toward consensus in the recommendations.

The agenda for the first portion of the session was structured to elicit inputs from all Panelists, with notes captured on-screen as redlines to the RFP interoperability language to ensure recommendations accurately reflected the Panelists' contributions. Subsequently, in a facilitated discussion, the Panelists grouped their recommendations into specific categories in real time. The second portion, as noted, provided opportunities for the Secretary to discuss the recommendations in additional detail.

This section of the report summarizes the discussion that took place. It highlights actionable changes to the interoperability language contained in the RFP and additional recommendations and lessons learned that can enable interoperability of the VA EHRM solution. Text boxes

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throughout the report present direct quotations from Panelists. To ensure participant confidentiality, MITRE has destroyed the transcript and event recording used to develop this report.

Topic Area: VA Definition of Interoperability

The key to modernization is creating greater interoperability with Governmental partners, including DoD, in a way that focuses efforts in support of the Veteran's journey, beginning with their military service. We will partner with others to ensure Veterans can get their benefits, care, and services consistently, easily, and with excellent customer service, no matter where they are throughout their lives. VA will work with local communities, and with other Federal, State, Tribal, and Local Government entities to ensure Veterans get what they need. VA will also continue to leverage the private sector where appropriate and needed to deliver the very best outcomes for Veterans.

– draft VA 2018–2024 Strategic Plan

Enable data sharing, interoperability, and agility through data standardization

VA needs to allow data sharing among various business applications, such as appointment scheduling and business intelligence, as well as ensure transportability of information between sites. Panelists advised VA to leverage and support the best-in-class innovation currently in use within the VA culture. VA must also enable interoperability as the Department integrates the EHR into other supporting systems, both within the VA network and with external health service providers. Agility is necessary for adoption of future innovative technologies and/or if VA wants to upgrade or change the EHR approach. The Panelists cautioned that the current EHR technology is already 20 years old and, as with all industries and information technology (IT) solutions, many possibly disruptive technologies exist on the horizon.

"It really optimizes transportability of best practices, because if you are trying to transfer best practices from one site to another and you have the same system where the best practice is going to land, then it is much easier."

The session began with a discussion on interoperability as currently defined by VA (Figure 1). Prior to establishing a roadmap to inform a nationwide plan to advance health data interoperability, VA must first ensure system-wide interoperability across the Department. Throughout the Review Panel session, the Panelists described and referred to this concept as "Level 1 Interoperability" throughout the Review Panel session; it includes migration of Veteran data from ~130 instances of the Veterans Health Information Systems and Technology Architecture (VistA) to one VA platform.

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Figure 1. VA Definition of EHR Interoperability

“Level 2 Interoperability,” as described in the Panel discussion, addresses the ability for VA to leverage the same Cerner platform used by DoD to ensure seamless care from active service to Veteran status. Once this capability is implemented, the clinical data transformation will allow a true longitudinal view of a Veteran’s record as he or she transitions from DoD to VA for care and other critical services such as benefit adjudication.

“Level 3 Interoperability” will allow both VA and DoD to take an important step toward transforming electronic patient data exchange on a national scale. With the utilization of community healthcare providers via the VA Community of Care initiative and DoD’s Tricare network providers, VA has the opportunity to drive interoperability between DoD and VA as well as with the extensive network of healthcare providers that serve our Nation’s Veterans, active duty service members, and their beneficiaries.

True nationwide EHR interoperability for the entire United States is the ultimate goal, and the Panelists agreed that VA and DoD could reach this goal if the three aforementioned levels of interoperability are achieved. Here, VA has the opportunity to drive clinical transformation and instantiation of a complete EHR for all patients at the national level.

Topic Area: Commit to Full VA-DoD Interoperability

The Panel focused primarily on reviewing the interoperability language within the RFP for the Cerner contract. However as described in Interoperability Levels 1 and 2, the commitment to the seamless integration of VA and DoD health data represents the foundation required to realize interoperability with private sector

“You really have to get the basics done first. Let's just make absolutely sure that the interoperability between DoD and VA [is achieved].”

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healthcare providers.¹ It is important to note that the interoperability levels can be addressed simultaneously and should not be separated, as they must be integrated to efficiently achieve the larger future data sharing ecosystem.

Specify the expectations for interoperability between DoD and VA

During discussions about the expectation that Cerner will provide a single EHR solution to be shared by both DoD and VA, the Panel raised concerns about the lack of specificity in the contract language. Current interoperability data standards address a subset of the Veteran's clinical record and VA has the opportunity to ensure Cerner provides interoperability of all discrete data, at a minimum, between VA and DoD. Adopting the same platform would increase seamless sharing, but the Panel stated that VA should take additional action to ensure that such sharing is realized. The DoD and VA systems should use proprietary database-to-database interoperability if necessary, to maximize interoperability between those two systems. These systems should be configured to meet the distinct needs of each while being connected to each other in a native database-to-database method as necessary, leveraging open interoperability standards wherever possible. As a result, clinicians should experience no differences when they move from a VA system to a DoD system. These data should also be computable, or be made computable according to a specific schedule. VA should consider adding language to the RFP that specifically defines the degree of interoperability the solution will provide, ranging from basic file sharing to fully interchangeable, integrated and functionally identical patient records.

The Panelists also stated that, for VA and DoD collectively, the contractual language should include the following requirements:

- Performance measures to hold Cerner accountable for reducing the administrative burden in clinician workflow with the objective of increasing efficiency
- Capability for bulk data export based on standards, with no proprietary formats (e.g., Flat FHIR [Fast Healthcare Interoperability Resources])
- “Push” capability to insert new patient data back into the VA EHR / Cerner database.

Pivot the RFP to be Veteran-centric and not system-centric

The Panelists discussed the impact of EHR implementations on clinician workflow, describing the issue as one of approaching the implementation as an IT system implementation rather than the preferred Veteran- or clinician-centric implementation. The current RFP appears to be written in a system-centric way rather than leveraging use-cases to describe the Veteran or clinician experience or workflow to characterize the requirement. The Panelists recommended that VA incorporate use-cases to characterize requirements and amend the RFP language to emphasize the Veteran-centric objectives. In addition, Panelists noted that VA should recognize that EHRs do not currently maximize efficient clinical workflow, and that VA specify that the

¹ Healthcare providers is used to refer to community based physicians/specialist and hospitals.

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solution present clinicians with relevant information where needed with a minimum number of “clicks to find.”

Topic Area: Leverage Current and Future Standards

The integrated EHR platform that DoD and VA are implementing provides the opportunity to significantly influence interoperability standards across the healthcare community, addressing gaps and competition among current standards. The Panel recognized that commercial health systems and technologies would realize only limited business value from making data portable between them, but this would lower the barrier to patient movement among healthcare providers.

Engage Cerner as an advocate of the VA and DoD position in all relevant standards-making bodies

The Panel recommended increased VA presence and leadership in national health IT standards-making activities, in coordination with the DoD. Additionally, VA should encourage Cerner to serve as an active advocate of the VA-DoD position and to participate actively in the development and/or evaluation of new standards, policy directives, operating procedures, processes, etc. As an integrated voting bloc, VA, DoD, and Cerner will have the potential to act as a strong driver of national standards. Panelists understood that VA is not currently active in the FHIR community or in the Health Level Seven International (HL7) Argonaut Project.

In addition, Panelists identified a need for standards to exchange patient-reported outcome data for integration into the clinician’s workflow. The current RFP language seemingly puts the burden on Cerner for the development of standards, and the Panel recommended that VA take a more active position. This will ensure that VA will participate and drive implementation when standards mature. Where standards are immature, VA must participate in efforts to accelerate standardization.

Require Cerner to implement all standards as defined by VA, current and future

Because it is unclear where health IT is heading in five years, the Panel strongly suggested VA include contract language to address possible future advancements in the form of standards as defined by VA. At a minimum, VA should seek maximum interoperability with community care organizations, using open interoperability standards wherever possible. This flexibility would ensure that VA does not rely on external stakeholders to determine the standards that VA would be required to accept. The Panel recommended that VA pay particular attention to specific categories of standards: real-time data read/write by care providers and Veterans; interoperability tools; seamless DoD and VA vision records; and principles for data normalization and structure. The Panel also recognized Cerner’s influence in ensuring that the CommonWell network interoperates at the highest possible levels with other networks including CareQuality—an influence that VA should continue to promote.

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VA must own its data; clear ownership and access are critical to success now and in the future

The Panel highlighted an important recommendation regarding data rights that was discussed in the prior VA EHRM Listening Forum on September 7, 2017. The Panel recommended that VA define who has what rights from the perspectives of data ownership, access, and sharing (e.g., VA owns the data and all data products vs. community care providers own the patient data vs. each Veteran owns all of his or her data). Determining the authoritative data source for the various elements of a Veteran's health record is an important Veteran-centric component of interoperability, the longitudinal record, and seamless access to data.

"So, what you need is clear access and clear ownership of your information...you need to have absolutely, undisputed, clear ownership and ability to move the data to any place you want to use it and use it in any way you want to use it when you get there. And not have them [Cerner] be able to say no, that's our data or hinder you in any way or have an unreasonable charge to get it."

VA should define an enterprise-wide policy for all VA data. A suitable policy would include, but not be limited to, EHRM-specific data, and should be issued by the VA Central Office (VACO) or Veterans Health Administration (VHA). VA must have clear ownership of and access to all the information in the EHR and be able to move that information (into new systems or among systems) as needed, now and in the future. Owning the data ensures that it is available regardless of vendor or system. VA must include this in the Cerner contract. Technology innovations occur rapidly in the 21st century, and VA must have full ability to move its data to future systems.

Panelists also recommended that VA publish its data model, for instance to the National Library of Medicine, to further promote commercial interoperability investments. Lastly, Panelists encouraged VA to leverage its investment in the Open Source Electronic Health Record Alliance (OSEHRA) by providing seed money to develop open source connectors between Cerner and Epic, which would encourage other vendors to join in the effort.

Topic Area: Commit to Open, Standards-Based APIs

A significant technology enabler of seamless interoperability among the community of Veteran healthcare providers is the use of Application Programming Interfaces (APIs). These software intermediaries allow disparate EHR applications to communicate with each other and exchange data using standard, defined forms. The Panel emphasized the need for VA to create an environment that would minimize additional costs to community providers in order to interoperate with VA. VA can accomplish this by requiring the new EHR system to expose APIs that support bi-directional data transactions. The Panel further recommended that VA make a commitment to open, standards-based APIs, including the SMART on FHIR/Argonaut APIs, to facilitate the ready and efficient exchange of data with partners providing care in the community and to support open clinical workflow.

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Establish clear publishing and access service requirements

The Panel recognized that data access requirements differ depending on who provides or accesses that data. Therefore, the Panel recommended that VA be more specific in defining each level of data publishing and access service that is specific to (1) Veteran access (e.g., use of vets.gov); (2) VA clinician access; (3) partner access; and (4) Health Information Exchange (HIE) access. The RFP should include a clear description of identity and access management requirements, including user population types and the association of specific application permissions with particular roles/positions.

Machine-to-machine access is also critical for efficient sharing of information. The Panel recommended that VA ensure that all significant data stored in the software be accessible through APIs with no requirement for creation of custom applications to specifically access VA data. From a forward-looking perspective, VA should require that the EHR system support the ability to access data elements using open standards-based interfaces, and include the ability to interface with legacy data, patient-generated data, and third-party data that resides outside the EHR system. In addition, Cerner should provide the required utility services to support intermediary or peer-to-peer services (e.g., support Veteran-directed or Veteran-mediated requests, data exchange, and ingestion of data from non-VA providers).

“The Contractor should provide all of the data that is currently being provided in the Contractor's patient portal to the consumer via an open standards-based API gateway. The Contractor should also provide all of the reporting data required by federal law to the Veteran via an open standards based API framework, accessible via any application or third-party data store of the Veteran's choice, that's number one.”

Provide a VA application platform that supports APIs from third-party providers with no barrier to entry

Currently vets.gov serves as a portal to Veteran services. The Panel recommended that VA consider using such a portal to connect any third-party application to the EHR solution without requiring fees or vendor permissions. VA should have full

authority to connect any third-party application through one of the standard open APIs conformant with the vendor's API without pre-registering the application with the vendor. This is a very important authority to have in terms of the ability to innovate rapidly, without constraints.

“The API Gateway document is awesome ... world class and future looking.”

The Panelists also reviewed the proposed VA “API Gateway” language provided during the API discussion to anchor the dialogue and concurred that this requirement is fundamental to supporting interoperability. The Panel strongly endorsed the “API Gateway” language. Specifically, the Panelists recommended that VA include a requirement that VA have full authority to connect any third-party application to the Cerner system without requiring prior approval by Cerner. Furthermore, VA should ensure that developers of third-party applications connecting to the VA system via the open standard and VA-defined APIs continue to own their

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intellectual property (IP). From a usability perspective, the Panel also recommended that VA be able to establish the connectivity business rules, such as the ability for applications to remain connected for a reasonable time frame (e.g., 1 year) and to receive automatic notification about patient information updates.

Require implementation of Clinical Decision Service (CDS) Hooks to invoke decision support from within a clinician's EHR workflow

EHRs are essential to efficient delivery of high-quality care, as they provide the clinician with essential decision data at the time required. However, current EHR systems approach workflow from an IT system perspective rather than a clinician's perspective. The latter workflow should, of course, be paramount in the VA EHR implementation, and should also leverage a recent innovation called CDS Hooks. This technology provides the clinician with context-driven decision support and capability by enabling the EHR to trigger third-party services at key events that include ordering medication and opening a patient face sheet. For example, when the VA clinician begins to prescribe medication, a CDS Hook can call an external service that presents the clinician with the list of medications already prescribed to the patient by clinicians outside VA. The Panelists strongly recommended that VA require Cerner to implement and use CDS Hooks within the clinician workflow.

Topic Area: Use Community Care Contracts to Foster Interoperability

The new EHR system must be able to communicate with other EHR systems (e.g., Epic, AllScripts, etc.) within the care community. It is critical that VA ensure the Cerner EHR system remain robust for future interoperability with new products. Cerner must commit itself to supporting other forms of interoperability, such as a presentation layer that is common to other systems (e.g., the App store model). The Panel recommended that prior to execution of the Community Care Act contract VA require third-party providers (and Cerner competitors) to commit to supporting the contract as early adopters.

"Innovations going forward are going to come from multiple directions. And having those interfaces, and going with a general interoperability approach that doesn't fork off from what's happening in the rest of the healthcare system, will allow the Veterans to benefit from technology whether that's coming from Google, from a new company, from an innovative shop within VA -- you end up creating a market with good prices, high value."

Veterans must be able to access and download a computable form of their health data

Panelists noted that access to data represents the biggest problem today. VA must clearly direct Cerner to expose data so it can be used by third parties. In the contract and in conversations with Cerner and third parties, VA must require specifics regarding how Veterans and providers will

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access and share their data. In addition, VA must require that any agreements leave the door open for future standards and technologies.

Panelists believed that VA could achieve this by invoking the principle that the data belongs to the Veteran, rather than by citing specific technologies and standards (given how rapidly they are evolving). Veterans must be able to invoke their right of access to data to support data exchange across all providers (e.g., pull data through an API on their smartphone and push it to their community care provider), now and in the future. Keeping pace with this requirement will drive continual innovation by Cerner and all providers.

VA must own the API layer

Cerner ownership of the API layer (across every customer) poses a real threat to achieving interoperability, speed of innovation, and cost efficiency throughout the network of community care providers. Panelists stated that it is of utmost importance that VA include specific language stipulating that VA and Veterans be able to use third-party applications without having to register them with Cerner. VA must control the API key, not Cerner.

Additionally, VA should require that Cerner provide access to MPages, a developer toolkit, and a programming interface that will enable innovators and third parties to develop APIs.

Require that community care contracts include VA EHR standards to support bi-directional data sharing

Panelists agreed that requiring the support and collaboration of community care providers and participating actively in health IT standards bodies would give VA the opportunity to advance the “national” standard for data sharing—closing any gaps and inconsistencies among federal, industry, and inter-industry standards. VA must require every provider in the chain of a Veteran’s care to support the same standards for data interoperability in order to ensure seamless, best possible care for Veterans. This includes the requirement that all providers and third-party applications, in exchange for using the VA-provided API gateway, provide bi-directional health information back to VA that can be used for context-driven clinical decisions and informatics.

Change the data exchange consent model from “opt in” to “opt out”

To encourage seamless interoperability across all entities providing care to Veterans, the consent model for exchanging data between healthcare providers must be modified to follow an opt-out rather than an opt-in policy, which limits participant numbers. This would allow Veterans to invoke their individual right of access under the Health Information Portability and Accountability Act (HIPAA) to move their data as needed. Many states have already adopted an opt-out consent policy as part of their HIE.² VA can achieve this by aligning its policy to an opt-

² See https://www.healthit.gov/sites/default/files/State%20HIE%20Opt-In%20vs%20Opt-Out%20Policy%20Research_09-30-16_Final.pdf

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out model, supported by the new VA proposed rule³ to allow HIEs to collect a Veteran's consent and electronically attest to the consent to VA in order to obtain the required EHR.

Topic Area: Additional Contract Changes

In addition to the recommendations in the prior sections, the Panelists encouraged VA to add further definitions and clarity in the following areas:

- Require Cerner to provide VA with full read and partial write access to all data elements within the EHR, at VA's sole discretion.
- Require Cerner to make the VA data model, standards, and other similar interoperability changes available in all other non-VA Cerner instances of its EHR platform.
- Clearly define "enabling security framework" so that users know if this means a specific security framework such as those provided by the National Institute of Standards and Technology (NIST), HITRUST, etc.
- Amend "national Common Trust Framework" to specifically refer to the intended source. The Panelists suggested that VA replace this wording with "Trusted Exchange Framework and Common Agreement (TEFCA)" as specified in the 21st Century Cures Act.
- Amend RFP Performance Work Statement (PWS) Section 5.10.4(i) to clarify if the "provider collaboration via secure e-mail using Direct standards" is limited to the Direct protocols and just the Cerner platform.
- Incorporate the model RFP language necessary for Cerner to support the API and SMART on FHIR platform and SMART-enabled applications, as described in Appendix B.

³ See <https://s3.amazonaws.com/public-inspection.federalregister.gov/2018-00758.pdf>

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II. Recommendations for RFP Changes

MITRE engaged Morrison & Foerster, LLP, as the independent and unbiased legal expert to identify the specific changes to the RFP language necessary to implement the recommendations made by the Interoperability Review Panel. MITRE provided Morrison & Foerster, LLP, with the summary recommendations and a copy of the RFP.⁴ In addition, MITRE collected specific ideas for contract language from the Panel. Appendix C presents all recommended RFP changes.

⁴ *Performance Work Statement for the VA Electronic Health Record Modernization System*, Final Version 1.7, Amendment 03, December 4, 2017, Department of Veterans Affairs. File name: 001 - VA EHRM IDIQ PWS (Amended 12.04.2017) - Copy.docx

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III. Observations from University of Pennsylvania Medical Center Site Visit

A delegation from VA and MITRE traveled to Pittsburgh, Pennsylvania, on January 19, 2018, for a meeting with representatives of UPMC Enterprises to discuss aspects of EHR interoperability that UPMC has successfully implemented over the past several years. The VA team, led by John Windom, included Dr. Ashwini Zenooz, (b)(6), John Short, and (b)(6). The MITRE group included Richard Byrne, Jay Schnitzer, (b)(6), and (b)(6). The hosts at UPMC included Dr. Rasu Shrestha, C. Talbot Heppenstall, Jr., Ed McAllister, Dr. Robert Bart, Adam Berger, Diane Michalec, Phyllis Szymanski, and Dr. Amy Urban, as well as additional staff.

The meeting was broken into four parts. Following introductions, Session 1 described the structure of UPMC. Session 2 covered UPMC's last decade of interoperability, and Session 3 centered on the road ahead for UPMC and industry.

Dr. Rasu Shrestha began the meeting by making the introductions and setting the agenda. He stated that UPMC's approach had followed a best-of-breed strategy, as opposed to a best-of-suite strategy, with the intention of failing fast and succeeding often. The overall UPMC structure has four parts: provider services, insurance services, international activities, and enterprises.

During the discussion of interoperability, the UPMC team described its approach to interoperability, called Connected Healthcare, which is based on the commercial product dbMotion of AllScripts. UPMC has created an entity titled ClinicalConnect HIE (CCHIE) that uses HL7. ClinicalConnect exists as a separate 501c(3) company, of which UPMC is a member. CCHIE contains 90 live interfaces. This HIE went live in June 2012; its members consist of 10 hospitals. It competes with three other HIEs in Pennsylvania. The repository contains data on 8.3 million patients, and, in terms of patient consent, CCHIE uses an opt-out model. It currently has connections to four EHRs: Cerner (two versions), Epic, and Varian. Data available within CCHIE spans allergies, clinical documents, diagnosis, encounters, immunizations, labs, medications, problems, and procedures. Much of this data is in the form of documents (Continuity of Care Document (HITSP C32 CCD format, including problems, allergies, and medications); unstructured clinical documents (HITSP C62 format); Consolidated Clinical Document Architecture (C-CDA CCD, including problems, allergies, medications, immunizations, procedures, and insurance); and HL7 Interface (ADT: encounters, documents, imaging documents, and labs only).

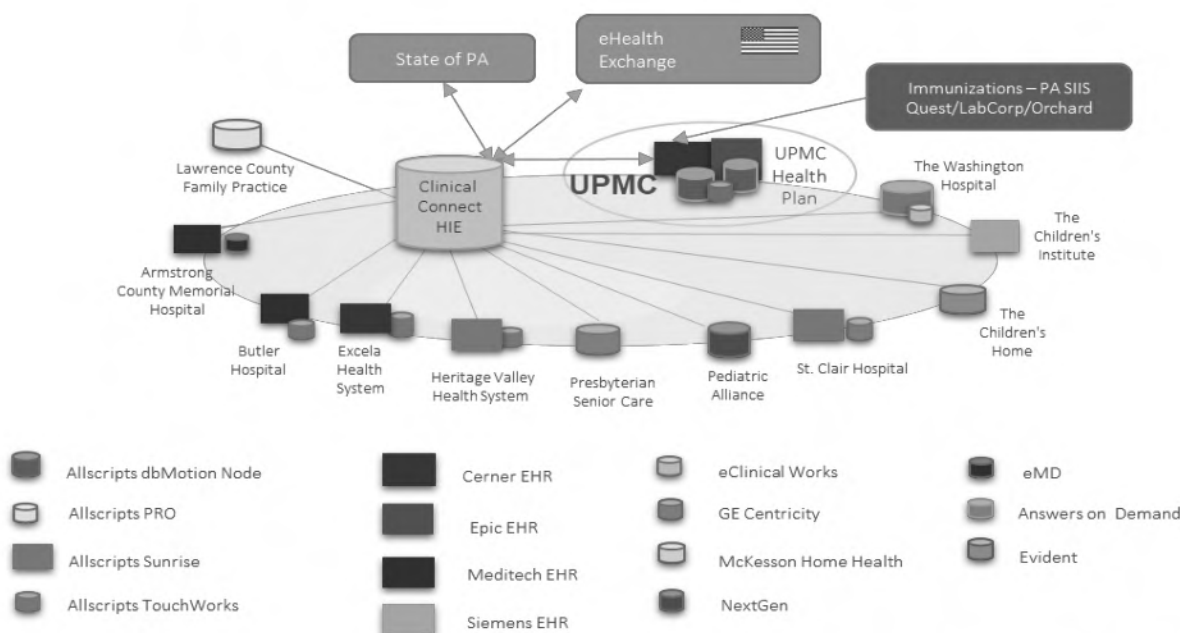
At the point of care dbMotion allows multiple views for the CCHIE: 1) a clinical view, 2) a newer view titled EHR agent, and 3) a Cerner MPage integration view. The next phase of the UPMC work in this regard will consist of integration with CommonWell. Figure 2 shows the architecture of the system. Figure 3 depicts the data feeds.

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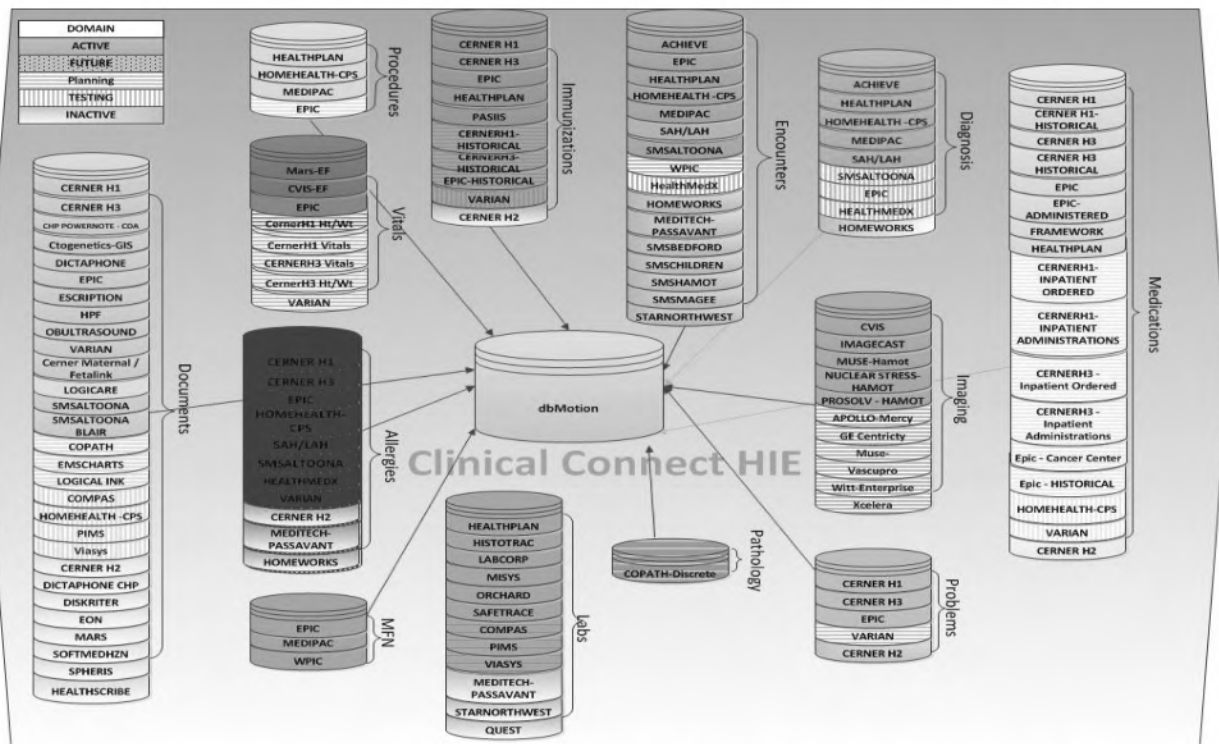
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Source: From UPMC Enterprises, used with permission, for VA use only

Figure 2. ClinicalConnect (Western Pennsylvania) Health Information Exchange



Source: From UPMC Enterprises, used with permission, for VA use only

Figure 3. Interoperability Data Integration

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When asked whether UPMC, or anyone else in the country, has a point-to-point Cerner-to-Epic interoperability solution that does not use an HIE, UPMC representatives responded “No.” Furthermore, UPMC representatives noted that about 10 percent of the total available individual patient data is currently transferred with UPMC’s interoperability system. This is complicated by an ongoing data explosion that doubles the amount of data in UPMC’s system about every 18 months.

Following the presentations and lunch, MITRE Chief Technology Officer Jay Schnitzer saw a live demonstration of CCHIE by Dr. Amy Urban and Dr. Rasu Shrestha. The live demonstration confirmed that all of the documents listed above are visible with equal fidelity and a very similar format from both the UPMC end and the community provider end and perspective. The system requires clinicians to know and understand where documents can be found, and sometimes requires multiple mouse clicks, but all documents can be accessed from the same EHR entry page with one single log in. Additionally, some data elements, including vital signs and labs, can be viewed in the form of graphs as a function of time, including data elements from multiple sources.

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IV. Closing Thoughts and Suggested Next Steps

The Panelists noted that VA cannot achieve true future EHR interoperability through the Cerner RFP alone, or through technology alone. The state of practice today shares only a small portion of available patient data. For VA to succeed in the future, multiple other components must be present and aligned: innovation, policy, standards, customer buy-in, and legislation, to name a few.

The following next steps are recommended for VA consideration:

1. Complete the RFP revisions, conduct appropriate negotiations with the Contractor expeditiously, and complete the Contract process as planned. Stand firm during negotiations to maximize ease of access to data and data models for building third-party APIs, applications, and services for future community innovations.
2. Work with other federal government agencies and departments with similar interoperability interests and concerns, including, but not limited to, the White House, DoD, Food and Drug Administration (FDA), Centers for Medicare and Medicaid Services (CMS), Office of the National Coordinator for Health Information Technology (ONC), and other parts of the Department of Health and Human Services, to align approaches to EHR interoperability and the development and support of standards government-wide.
3. Support future innovation approaches, including concepts such as an Interoperability Laboratory and outreach to the broader innovation ecosystem (major medical centers, academia, traditional and non-traditional healthcare providers, startups, individual entrepreneurs, others). It is critical to align the innovations planned in VA's Digital Veterans Platform to the VA EHR innovation efforts to ensure consistent, continuous improvements to clinician and Veteran health experiences.
4. Create an External Review Panel to provide continuous expert guidance, review, and feedback over the course of the implementation and help capture best practices from the expert community going forward. Conduct ongoing demonstrations of end-to-end Veteran use cases that require data sharing across organizational boundaries to validate improvements in Veteran healthcare and reduce burdens on healthcare providers. VA and Contractor will ensure that Federal Advisory Committee Act (FACA) guidelines are followed in leveraging any external review panels.

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Appendix A: Interoperability Review Forum Participants

Panelists	Title	Organization
Aneesh Chopra	President	CareJourney, former United States Chief Technology Officer
Charles E. (Chuck) Christian	Vice President, Technology and Engagement	Indiana Health Information Exchange
Ryan Howells	Principal	Leavitt Partners, LLC
Andrew Karson, MD	Director, Clinical Decision Support	Massachusetts General Hospital
Chris Klomp	Chief Executive Officer	Collective Medical Technologies, Inc.
Kenneth Mandl, MD	Professor, Biomedical Informatics Director, Computational Health Informatics	Harvard Medical School Boston Children's Hospital
Frank Opelka, MD	Medical Director, Quality and Health Policy	American College of Surgeons
Peter Pronovost, MD, PhD	Director, Armstrong Institute for Patient Safety and Quality Senior Vice President, Patient Safety and Quality	Johns Hopkins University
Christopher J. (Cris) Ross	Chief Information Officer	The Mayo Clinic
Carla Smith	Executive Vice President	The Healthcare Information and Management Systems Society
Paul R. Sutton, MD, PhD	Professor, Biomedical Informatics and Medical Education Associate Medical Director, Inpatient IT Systems, UW Medicine IT Services	University of Washington

VA Participants	Title	Organization
David J. Shulkin, M.D.	Secretary	Department of Veterans Affairs
Carolyn Clancy	Executive in Charge, Veterans Health Administration	Department of Veterans Affairs
Bill James	Acting Assistant Secretary, Office of Information & Technology	Department of Veterans Affairs
John Windom	Program Executive for EHRM and Special Advisor to the Under Secretary for Health	Department of Veterans Affairs
Dr. Ashwini Zenooz	Chief Medical Officer, EHRM; Deputy, Office of Deputy Under Secretary for Health Policy & Services, VHA	Department of Veterans Affairs
John Short	Chief Technology Officer, EHRM; Executive Director of Information Technology System Modernization	Department of Veterans Affairs
(b)(6)	Portfolio Lead: Project Transition and VA Integration, VA Center for Innovation	Department of Veterans Affairs
Camilo Sandoval	Senior White House Advisor, VHA	Department of Veterans Affairs
(b)(6)	Senior Advisor to the Secretary on Strategic Partnerships	Department of Veterans Affairs
(b)(6)	Contracts	Department of Veterans Affairs
Kyle Sheetz	White House Fellow	Department of Veterans Affairs

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Other Federal Government Participants	Title	Organization
(b)(6)	Senior Advisor, Office of Administration	The Centers for Medicare & Medicaid Services
Chris Liddell	Assistant to the President for Strategic Initiatives	The White House, Office of American Innovation
*Bruce Moskowitz, M.D.	Internist	External Expert Participant
Shannon Sartan	Director, Digital Services	The Centers for Medicare & Medicaid Services
Dr. Lauren Thompson	Director	DoD/VA Interagency Program Office
Jon White	Deputy National Coordinator for Mental Health	The United States Department of Health and Human Services/The Office of the National Coordinator for Health Information Technology

*Upon review of this document on October 6, 2018, Fred Mingo, OEHRM FOIA Officer noticed that Dr. Bruce Moskowitz was incorrectly identified and should not be under the entry column "Other Federal Government Participants."

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Appendix B: RFP Language for Purchasing Extensible Health IT

From <https://smarthealthit.org/2017/08/draft-model-rfp-language-for-purchasing-extensible-health-it/>, as of January 15, 2018.

SMART Platform (www.smarthealthit.org) is a project that lays the groundwork for a more flexible approach to sourcing health information technology tools. Like Apple and Android's app stores, SMART provides the means for developers to create and for health systems and providers to easily deploy third-party applications in tandem with their existing electronic health record, data warehouse, or health information exchange platforms.

To deploy SMART-enabled applications, health systems must ensure that their existing health information technology infrastructure supports the SMART on FHIR API. The SMART on FHIR starter set detailed below lists the minimum requirements for supporting the API and SMART-enabled applications. You may wish to augment this list of minimum requirements with suggestions from the Add-On Functionality listed depending on the types of applications your organization wishes to deploy.

This document is intended as a resource for providers and health systems as they draft Request for Proposals (RFPs) and negotiate with their HIT vendors for added functionality. It has multiple authors from across the SMART team and its advisors. Feedback is welcome.

The vendor must support the SMART on FHIR platform, a vendor agnostic API that allows third-party developers to build external apps and services that integrate with the vended product.

At a minimum, the vendor product should include the following components in order to support SMART on FHIR and SMART-enabled applications:

Data Access

- Provide automated, standards-based, read-only access through the FHIR API and FHIR data models (resources) to:
 - a well-defined set of real-time discrete data (including support for the API parameters and resources described in the Argonaut Implementation Guide)
 - free-text clinical notes

Data Manipulation

- Write structured data from third-party apps back to the organization's EHR and, where relevant, a data warehouse, using the FHIR REST API to communicate data including:
 - free-text clinical notes

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Standards-Based App Authorization

- Protect data and identity endpoints with standards-based authorization mechanisms (including the OAuth2 profiles described in the Argonaut Implementation Guide).
- Provide access to data endpoints with an approach that does not require user intervention subsequent to the initial setup such as the method described in the draft SMART Backend Services Profile (<http://docs.smartealthit.org/authorization/backend-services/>) Provide capability to restrict this access to a specified set of patients (roster).
- Enable Health System to connect any third-party app of their choice that is conformant with the API without pre-registering the app with HIT Vendor.
- Enable patients to connect any third-party app of their choice that is conformant with the API without pre-registering the app with HIT Vendor through the OAuth Dynamic Registration protocol.
- Provide OAuth refresh tokens with a duration of one year to patient and provider facing apps that support the SMART Client Secret profile.

Identity Management

- Act as a standards-based Identity Provider using OpenID Connect. This ensures that users can authenticate to plug-in apps using single-sign-in via their existing EHR or patient portal credentials.
- Act as a standards-based relying party to a customer-selected Identity Provider using OpenID Connect. This ensures that users can sign into the EHR or patient portal using an external, hospital-supplied single-sign-on account.

Workflow

- Support standards-based embedding of external application UI (HTML5). This ensures that app developers can build Web apps, and these apps can run directly inside of the EHR.
- Support the launch of external applications in the clinician's workflow (this is not limited to the EHR and should include non-EHR integrated tools such as smart phones and tablets). For example, a clinician that has opted to use a third-party-developed native iPad app to visualize a patient's BMI over time can seamlessly use the application alongside the EHR via single-sign-on.
- Support notifications to and from running applications. For example, an embedded app can notify the EHR when the user is "done" with it.

Add-On Functionality

The provider organization may also want to consider the following additions to its RFP depending on the types of applications it wishes to develop and run in the future.

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Bulk Data Export

- Provide automated access to bulk export of data (complete representation of all data in the MU Common Clinical data set as well as free text notes) using a method like the SMART Flat FHIR draft proposal (<http://docs.smarthealthit.org/flat-fhir>)

Data Manipulation

- Write structured data from third-party apps back to the organization's EHR and, where relevant, a data warehouse, using the FHIR REST API to communicate data including:
 - medication prescriptions
 - lab and diagnostic imaging orders
- Support the dependent transactions necessary to ensure that actions completed by third-party applications using the API are valid in the EHR and data warehouse.

Context-Specific Service Hooks

- Support the ability to call an external standards-based service in specific workflow steps, through the CDS Hooks specification, including:
 - opening a patient record
 - new prescriptions
 - new lab orders
 - new imaging studies

Intellectual Property

The IP of any app integrated through the SMART on FHIR API belongs to the author and not the vendor.

Custom SMART on FHIR Extension to a Proprietary API

Should a vendor neglect to provide SMART on FHIR natively, the client has the right to provide a custom extension to the vendor's API. The ownership of the IP for the custom extension is negotiable between the client and the vendor, but the ownership of the app using the custom extension belongs to its author.

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Appendix C: Recommended RFP Interoperability Language Changes

The table below captures the recommended changes to the VA EHRM RFP.

Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
Commit to Full VA-DoD Interoperability				
1	Define specific capability performance requirement and mechanisms to hold Cerner accountable for reducing the administrative burden in clinician workflow with the objective of increasing efficiency.	<p>The IDIQ RFP PWS Section 5.1.11 speaks to overall EHRM value and performance management monitoring, measurement and reporting. Performance metrics will be defined and enforced at the task order level, since, for example, hosting metrics will be significantly different from deployment metrics.</p> <p>The RFP Section 8.6 refers to the use of Quality Assurance Surveillance Plans (QASP), which will include Functional and Non-Functional Key Performance Indicators (KPIs). The QASP will evolve as the EHRM solution and technology matures and is intended to establish Contractor accountability to what VA requires and values.</p>	None.	Concur.

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2	Define specifically the <i>span</i> of providers who can properly interface with VA under a proposed solution (the number of community providers who would be able to interface with VA under a solution as a function of cost to the provider).	RFP Section 5.2.1(j) states that "The EHRM solution shall support access via tablet or mobile device as adjudicated by joint governance. Platform specifics will be identified by VA at a TO level." Section 5.10.4 states that "The Contractor is required to collaborate with VA affiliates, community partners, EHR providers, healthcare providers, and vendors to advance seamless care throughout the healthcare market."	Suggest amending the language in RFP Section 5.2.1(j) to: "Support broad access via tablet or mobile devices and pursue technology to reduce the burden to the clinicians (e.g., providing third-party provide access to information using light-weight portals and support for future generation mobile devices). Platform specifics shall be adjudicated by joint governance and incorporated by VA at a TO level."	Concur. Will negotiate with Cerner for inclusion of language.
3	Define the <i>degree</i> of interoperability the solution provides (ranging from basic file sharing to fully interchangeable, integrated and functionally identical patient records).	RFP Section 5.10.4 speaks to interoperability and provides sufficient breadth to introduce any additional information exchange requirements in the future, at the sole discretion of VA. Requirements Traceability Matrix (RTM) VA-FR-31 discusses specifics of data management, types of data to be exchanged, and methods of communication.	Suggest adding to RFP Section 5.10.5: "m) The Contractor shall conduct an annual Interoperability Self-Assessment against standards that shall be specified by VA, such as those promulgated by HIMSS or future standards to be identified by VA."	Concur. Will negotiate with Cerner for inclusion.

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4	Pivot the RFP to be Veteran-centric and NOT system-centric. Be mindful that lessons learned are that many EHRs do not currently maximize efficient clinical workflow, so build that in (e.g., using CDS Hooks) and present information where needed with minimum "clicks to find" to reduce clinician burden.	<p>RFP Section 5.2.1 speaks to the EHR application supporting workflows.</p> <p>Section 5.5.1 Workflow development and normalization addresses configuration of workflows to meet VA requirements.</p> <p>Section 5.5.7 Organizational Change Management discusses optimizing workflows for each clinical role.</p> <p>Section 8.6 refers to the use of Quality Assurance Surveillance Plans (QASP) which provides active, continuous measurement against the extensive performance requirements captured in Appendices A-1 and A-2: EHRM Key Performance Indicators to ensure a Veteran-centric approach.</p> <p>RTM section VA-FR-33 requires adoption, development and maintenance of metrics to assess timeliness and quality of healthcare delivery to the patient population.</p> <p>The current RFP language can be clarified to specifically refer to the improvement on Veteran-centric delivery.</p>	<p>Suggest adding to RFP Section 5.5.1: "k) Provide an understanding of how all workflows will impact VA care coordination and management processes (e.g., incorporating community information) to improve Veteran-centric delivery."</p> <p>Also add to Section 5.5.1: "l) Configure workflows to incorporate all community data at the discrete level in support of clinical decision support, care management, disease management. The clinical workflow within the EHR should not require users to visit additional screens to view externally sourced data."</p> <p>See Item 29 for specific recommendations on CDS Hooks.</p>	Concur. Will negotiate with Cerner for inclusion.
5	Require Cerner support end-to-end use cases with major external stakeholders involved.	RFP Section 5.2.1 speaks to the EHR application supporting workflows. The Contractor can only be held responsible for elements of the end-to-end use case that reside within their system.	Suggest adding to RFP Section 5.2.1: "Testing conducted under the Test and Evaluation Program Plan may include specific workflows to inform a demonstration of end-to-end clinical use cases involving external stakeholders."	Concur. Will negotiate with Cerner for inclusion.

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6	Develop detailed data flow requirements between Cerner and all other vendors, be specific using clinical workflow or Veteran/patient-centric use cases.	Detailed data flow requirements should not be part of the RFP as it will result in the limitation of functionality to the specific data flows specified. They will be part of the Test and Evaluation Plan (TEP), where data flows can be added or modified. However, RFP Section 5.5.1 does not indicate that the external community data and end-to-end workflows will be considered in the configuration of standard EHRM workflows.	Suggest adding to RFP Section 5.5.1: "j) The Contractor shall enable configuration of the application that supports external community data without requiring the clinician to go to special screens to see and use external data."	Concur. Will negotiate with Cerner for inclusion.
7	Specifically define the machine-data readability expectations to ensure interoperability between legacy, community care providers, and Cerner (e.g., notes fields).	RTM VA-FR-31 Requires the ability "to manage data structures that are standardized, accessible and editable." Specific requirements are to be incorporated into Task Orders, according to the structure of the contract.	See Item #34 for recommended changes to incorporate the SMART on FHIR and SMART-enabled applications. See Item # 49 for recommended changes to incorporate sharing of the EHRM data model and to improve the amount of computable data shared with community care providers. Suggest VA obtain a description from the Contractor that describes the current baseline of shareable data elements that are computable.	Concur. Will request information from Cerner.
8	Document the DoD-VA EHR Exchange Framework - it can serve as a starting point for the National model.	This is information that should be included as part of acquisition baseline developed by EHRM Program Management Office technical activities.	None.	Concur.
9	Require ability for bulk data export.	RFP Section 5.10.4(g) requires the Contractor to provide a software solution for multilateral standards-based ingestion, normalization, storage and exporting of Health Information Exchange acquired Veteran health information.	None.	Concur.

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10	Require "push" capability to send data back in to VA EHR / Cerner database.	RFP Section 5.10.4(g) requires the Contractor to provide a software solution for multilateral standards-based ingestion, normalization, storage and exporting of Health Information Exchange acquired Veteran health information.	None.	Concur.

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11	Require that VA drive and own the analytical algorithms and not rely on Cerner. Require that VA health organizations be involved in building the logic models with the community and the vendor.	<p>RFP Section 5.1.5 requires the Contractor provide requirements development support but does not include who is responsible for coordinating the community input on the logic models.</p> <p>RFP Section 5.1.7 requires the Contractor support data management but does not state that VA shall provide the analytical algorithms.</p> <p>RFP Section 5.5.1(e) requires the Contractor support robust semantic modeling for the information associated with the workflows. Further detail to achieve this recommendation is also detailed in the Functional Requirement documentation, specifically VA-FR-31. VA should lead and own the analytical algorithms as it is in the best interest of the health community. By owning the algorithms, VA will take the lead on coordinating the effort, but the Contractor will actually develop the algorithms.</p>	<p>Suggest adding to RFP Section 5.1.5: "While the Contractor shall provide such support, VA reserves the right to take the lead on coordinating input from the user and provider communities. VA may, at its discretion, incorporate analytics from other entities, and include them in its future Digital Veterans Platform, with which the EHR must be fully compatible and interoperable."</p> <p>Suggest adding to RFP Section 5.1.7(b): "based on community and VA coordinated analytic algorithms."</p> <p>Suggest adding to RFP Section 5.5.1(e): "VA and its agents shall have unlimited rights to all resulting models and algorithms."</p> <p>Suggest adding to RFP Section 5.5.1(f): "which modeling shall be based on analytical algorithms and data models (1) developed by the Contractor, (2) co-developed by the Contractor in coordination with VA health organizations and the community, (3) developed by VA health organizations, or (4) provided by third-party developers. VA and its agents shall have unlimited rights to all algorithms and logic models incorporated in the EHRM solution, and intellectual property rights will be handled in accordance with § H.2 of the Contract "VA EHRM IP License Agreement" on a Task Order basis."</p>	Concur. Will negotiate with Cerner for inclusion.

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12	Enhance the data quality management requirements to ensure Cerner is responsible for maintaining and resolving data quality issues.	RFP Section 5.1.8 Requires the Contractor to be responsible for data migration, but RFP Section 5.1.7 does not include a requirement for the Contractor to manage data quality internal to its systems.	Suggest adding to RFP Section 5.1.7: "j) Maintain backward compatibility of the EHRM solution in such way as to maintain the quality of the data, to ensure that, once captured, the Government has access to and computational use of the data regardless of the evolution of the EHRM or age of the data k) Identify data quality issues found in data sourced from systems beyond its operational remit, applying the same validations and quality standards to incoming external data that it performs for data originated natively within the EHRM solution. Where the principle of seamless care requires that EHRM accept data that does not meet its internal data quality standards, Contractor shall implement the solution so that any incoming data that does not meet EHRM data quality standards be clearly flagged as such and provide both process and user interface to allow incorrect or missing data to be remedied if possible."	Concur.
13	Define the common identity and access management approach Cerner and others will adopt (e.g., using the Vets.gov identity as the coordinating identity).	RFP Section 5.5.2 describes the required approach to identity and access management across population types and roles. DoD/VA are aligning their efforts to address this going forward.	None.	Concur.
14	Adopt the DoD approach to data and system security.	RFP Section 5.4: Information System Authorization, Testing and Continuous Monitoring describes the security approach for the shared DoD/VA authorization boundary. Joint DoD/VA Strategy will be executed.	None.	Concur.

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15	Share the VA's security approach to medical and endpoint security with DoD for opportunity to leverage and harmonize.	RFP Section 5.4: Information System Authorization, Testing and Continuous Monitoring describes the security approach for the shared DoD/VA authorization boundary. Joint DoD/VA Strategy will be executed.	None.	Concur.
16	Require Cerner to make the VA data model, standards, and other similar interoperability changes available in all other non-VA Cerner instances of its EHR platform.	RFP Section 5.10.4.1 requires opportunity for agreed upon Contractor proprietary information/data model extension points (e.g., ingestion and record APIs) to be provided to both international and national standards designating organizations, however, this does not include providing the capability to other Cerner users, which would extend Cerner interoperability across the community.	Suggest adding to RFP Section 5.10.4.1: "The Contractor shall provide VA access and usage rights into any underlying proprietary terminology/code systems for the purpose of enhancing national standards to address any gaps identified in the EHRM solution. The Contractor shall also make the interoperability capabilities and product enhancements developed under this contract available to non-VA Cerner clients."	Concur. Will negotiate with Cerner for inclusion of language.
17	Clearly define "enabling security framework." Does this mean a specific security framework such as NIST, HITRUST, etc.	VA Requirements Traceability Matrix Non-Functional requirements provides the security requirements to include Access Management, Identity Management, and Information Assurance/Security. RFP Sections 5.4 Information System Authorization, Testing and Continuous Monitoring and 5.5.2 Identity and Access Management provide additional clarification on the security requirements.	None.	Concur.

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Leverage Current and Future Standards				
18	Specifically describe what and how you can read, write, and reconcile re: health data.	Requirement VA-FR-31 describes data management requirements: standardized data and coding terminology systems; use of government endorsed messaging and content standards for interoperability; management of data elements from various entry points etc. The current requirement does not provide understanding of which data elements are being exchanged and the degree of interoperability/ computability supported.	Suggest adding to RFP 5.10.4(m): "The annual assessment will report on the state of each data element (e.g., which are supported in what capacities and in which formats). This will help assure standards implementation consistency and assure standards compliance with evolving national standards."	Concur. Will negotiate with Cerner for inclusion of language.
19	Define who has what rights from a data sharing perspective, impacting APIs (e.g., VA owns the data + all data products vs. Community care provider owns their treatment info on patient vs. patient owns all their own data.)	Requirement VA-FR-31 and RFP Section 5.1.7 describe data management requirements (including syndication). Section 5.5.4 requires "all, significant data stored in the software is accessible through API's" however clarification is needed to ensure access to all data originating from alternate VA-designated authoritative sources.	Suggest adding to RFP 5.5.4: "l) Provide standards-based API access (e.g., FHIR) to all patient data from the VA-designated authoritative data sources for the patient's record within the Contractor's product suite."	Concur. Will negotiate with Cerner for inclusion of language.
20	Identify the authoritative source for the various elements of a Veteran's health record.	RFP Section 5.1.4 requires the Contractor to provide support in the development and/or evaluation of new Standards, Policy Directives, Operating Procedures, Processes, etc. Broader recommendation beyond the scope of the EHRM RFP is for VA to define the authoritative source policy for all VA data. This is not an EHRM specific policy and should be issued by VACO or VHA.	Suggest adding to RFP 5.5.4: "j) assist VA in defining and establishing the authoritative data sources associated with each data element in the EHR (e.g., where it is available and who has access to the information)."	Concur with the language for 5.5.4.

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21	Increase the VA presence and leadership role in standards-making bodies (e.g., Argonaut).	Increasing VA presence and leadership roles in standards-making bodies is an entirely separate recommendation that is not related to the IDIQ.	None.	Concur.
22	Include requirement for Cerner to support VA as an advocate to VA position on all relevant standards-making bodies.	RFP Section 5.1.4 requires Contractor support in the development and/or evaluation of new standards, policy directives, operating procedures, processes and/or assessments on their impacts when implemented.	None.	Concur.
23	Require Cerner to implement all standards as defined by VA.	Requirements Traceability Matrix VA-NJ-177 defines interoperability data standards and specifically cites support of the health data standards identified in the VA-DoD Health Information Technical Standards Profile and by the VA-DoD Interagency Clinical Informatics board.	None.	Concur.
24	Clarify the intended reference in the phrase “national Common Trust Framework.” Does this refer to the Trusted Exchange Framework and Common Agreement (TEFCA) specified in the 21st Century Cures Act?	RFP Section 5.10.4(h) refers imprecisely to the "national Common Trust Framework."	Suggest replacing the phrase in RFP Section 5.10.4 h) "national Common Trust Framework" with “Trusted Exchange Framework and Common Agreement (TEFCA).”	Concur. Will negotiate with Cerner for inclusion of language.
25	Clarify if the “provider collaboration via secure e-mail using Direct standards” is limited to the Direct protocols and just the Cerner platform.	RFP Section 5.10.4(i) requires the Contractor, by IOC, to "provide a capability for provider collaboration via secure e-mail using Direct standards within a Cerner Millennium EHR workflow context."	Suggest adding to RFP Section 5.10.4(i): "the ONC Direct protocol or future VA-designated standard."	Concur. Will negotiate with Cerner for inclusion of language.

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Commit to Open, Standards-Based APIs				
26	Be specific about the VA publishing / access service requirements.	RFP Section 5.5.4 includes requirements that all significant data stored in the software is accessible through API's with no requirement for creation of custom applications to specifically access VA data. RTM VA-NF-7 requires the system to support the ability to access data elements using open standard-based interfaces including legacy data. Clarification is needed to ensure the intention to pursue standards-based APIs.	Suggest adding to RFP Section 5.5.4 – “standards-based” in front of APIs.	Concur. Will negotiate with Cerner for inclusion of language.
27	Define in the contract the VA publishing / access services specifically for (1) Veteran access services (e.g., vets.gov), (2) VA clinician access services, (3) Partner access services, and (4) HIE access service.	RFP Section 5.5.2 describes identity and access management requirements including user population types and the association of specific application permissions tied to roles/positions. RTM VA-NF-6 through 48 describe specific access services required.	None.	Concur.
28	Ensure external API developers can host their apps on an app platform that is NOT controlled by Cerner (and therefore does not require Cerner licensing and approval).	RFP Section 5.1.8(d) requires the contractor analyze and propose a way forward for the capability for external apps to use HealthIntent as a data source. Section 5.5.4 requires the contractor to support data exchanges via the API gateway. Section 5.10.4.2 requires the contractor to work in good faith to integrate the EHRM with the Digital Veterans Platform API gateway.	Suggest replacing the second sentence in 5.10.4.2: “The Contractor shall integrate the EHRM to interoperate with DVP or future state VA platform.”	Concur. Will negotiate with Cerner for inclusion of language.

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29	Include requirement for Cerner to provide CDS Hooks to support open clinician workflow.	RFP Section 5.8 requires the contractor provision robust data analysis toolsets that allow, among other things, analytics and Clinical Decision Support (CDS). VA-NF-T26 requires "integration with Cerner via standards-based interfaces (including but not necessarily limited to support for FHIR APIs and/or OMG CDS API/ HL7 CDS APIs (e.g., CDS Hooks)".	None.	Concur.
30	Specify the required utility services to support intermediary or peer-to-peer services; e.g., support Veteran-directed or Veteran-mediated request, exchange, and ingestion from non-VA providers (via APIs where available).	RFP Section 5.10.4(c) requires "the Contractor shall provide a software solution enabling VA to release and consume, via on-demand access, a Veteran's complete longitudinal health record to and from DoD and connected community partners. The longitudinal record solution shall support Provider-to-Provider record sharing, as well as Provider-Veteran-Provider sharing (Veteran mediated record sharing), including appropriate consent management."	Suggest adding ", regardless of which EHR they use" after "connected community partners...to and from DoD and connected community partners, regardless of which EHR they use."	Concur. Will negotiate with Cerner for inclusion of language.
31	Require that VA has full authority to connect any VA-approved, secure third-party app with the Cerner system, without Cerner approval.	RFP Section 5.7.1 requires the contractor provide on-site integration for devices connecting to the Contractor system. VA is fully responsible for the security of its systems and protection of its data.	Suggest adding to 5.7.1b: "including via the Digital Veterans Platform...support for VA-approved third-party apps connecting to the Contractor system, including via the Digital Veterans Platform." Suggest adding to 5.7.1 – "g) Permit and approve connecting all VA approved secure apps without additional fees or licensing."	Concur. Will negotiate with Cerner for inclusion of language.

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32	Ensure the API developers retain their IP rights when their API is used to connect to the Cerner interface.	<p>RFP Section 5.5.4 sets forth requirements with respect to APIs, including paragraph (e), which provides for the provision and maintenance of a Developer Portal.</p> <p>Section 5.10 generally promotes innovation while 5.10.4.2 requires the Contractor to support the Digital Veterans Platform (DVP) API gateway which is intended to provide a neutral application platform for third party APIs.</p> <p>Additional language is required to promote innovation in the creation of third party applications by removing derivative or cascading intellectual property restrictions/ constraints.</p>	Suggest adding to RFP 5.5.4(e): " and provide policies and procedures for the use of the Developer Portal(s) and APIs that promote innovative third-party API development" and "Third party API developers shall retain their IP rights when their API is used to connect to the Cerner interface, and there will be no derivative IP ownership when third parties consume Cerner terminology through open APIs."	Concur. Will negotiate with Cerner for inclusion of language.
33	Require the ability for 3rd party apps to remain connected to the Cerner system and receive automatic notification on updates (e.g., vaccination). Allow the app to connect without being cut off in accordance with VA security requirements.	RFP Section 5.7.1 requires the contractor provide on-site integration for devices connecting to the Contractor system.	<p>Suggest adding to RFP Section 5.7.1(b): "support for third-party apps connecting to the Contractor system."</p> <p>Suggest adding the following new paragraphs (ii) and (iii) to RFP Section 5.7.1(b): "ii. Provide ability for third-party apps to remain connected to the Contractor system in accordance with VA security requirements and receive automatic notification on updates; and iii. Allow the app to remain connected without interruption lasting longer than a certain period of time to be approved by the Government."</p>	Concur. Will negotiate with Cerner for inclusion of language.

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34	Incorporate the model RFP language necessary for Cerner to support the API and SMART on FHIR platform and SMART-enabled applications.	RFP Section 5.10.4 and the Requirements Traceability Matrix refer to SMART and FHIR based applications but do not incorporate all elements of the suggested functionality such as the support for standards-based embedding of external application UI (HTML5).	Suggest adding to RFP Section 5.10.4: "In addition, the software and services shall support the VA designated standards, such as SMART on FHIR and SMART-enabled applications, or published standard at the time."	Concur. Will negotiate with Cerner for inclusion of language.
Use Community Care Contracts to Foster Interoperability				
35	Before the contract is signed, get Care Act providers and Cerner competitors to commit to support the contract as early adopters.	Pre-contractual activity and pertains to future strategic discussions to drive interoperability in the marketplace.	None.	Concur.
36	Require publication of the EHRM /Cerner clinical data model in the National Library of Medicine (following the Kaiser example).	RFP Section 5.10.4.1 states: In support of the interoperability objectives under this Section, agreed upon Contractor proprietary information/data model extension points (e.g., ingestion and record APIs) may be provided to both international and national standards designating organizations as described and set forth in an applicable Task Order.	None.	Concur.
37	Require the Veteran to be able to invoke their right of access to data as the intermediary to support data exchange (e.g., pull through their API on phone and push to their community care provider).	RFP Section 5.7.1 requires support to Veterans ensuring they can effectively navigate the HealtheLife patient portal and Wellness programs to effectively manage their health.	Suggest adding to RFP Section 5.7.1(c): "using mobile apps, thin-client and thick-client solutions" and "Veterans shall be able to enable sharing of their health data with their community care providers in accordance with all VA-designated national standards."	Concur. Will negotiate with Cerner for inclusion of language.

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38	Require Cerner and the Community Care provider applications provide bi-directional health information in exchange for using the VA-provided API gateway.	RFP Sections 5.10.1, .2, and .3 require support for innovation and other development activities. Section 5.10.4(c) requires "a software solution enabling VA to release and consume, via on-demand access, a Veteran's complete longitudinal health record to and from DoD and connected community partners." VA-NF-61, -63, and -65 requires bi-directional interface in support of Pharmacy. This requirement can be fulfilled by a flat file and does not require the data to be computable.	Suggest adding to RFP Section 5.10.4(c): "The bi-directional health information exchange shall maximize use of discrete data that supports context-driven clinical decisions and informatics."	Concur. Will negotiate with Cerner for inclusion of language.
39	Shift VA policy enabled by the Choice Care Act from "Opt-In" to "Opt-Out" such that the starting assumption is that data can be shared unless the Veteran "opts out."	Review and revise VA policy.	None.	Concur.
Other				
40	Analyze and understand the operational cost to VA to implement and operate under the proposed solution.	Analysis of cost information is not part of a IDIQ contract. It will be done as part of the standard PMO processes.	None.	Concur.

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41	Incorporate requirement that subsequent updates and improvements to the Cerner solution is part of the baseline contract (and cost).	RFP Section 5.2.3 Software Maintenance requires: The Contractor shall provide its commercial support and maintenance services described in its End User License Agreement. Leveraging Contractor's best practices and agreed upon upgrade schedule between DoD and VA, software maintenance includes all releases of the software such as major releases, minor releases, maintenance releases.	None.	Concur.
42	Address the differences between federal and state privacy laws - policy that Federal laws take precedence over state laws.	Federal and state privacy laws can only be addressed through legislation.	None.	Concur.
43	Ensure VA has no gag order: Require Cerner to allow open, public sharing/reporting (e.g., screen shots) on issues or errors with the EHR solution (e.g., if there is a known anomaly, that anomaly and its work-around is shared with the Cerner user community).	RFP Section 5.3.3 - System Quality and Performance Measures and Monitoring is appropriate to capture this requirement. There is no explicit contractual language requiring the contractor to disclose issues or efforts, nor is there language explicitly preserving the right of VA to share such information.	Suggest adding to RFP Section 5.3.3: "Contractor is responsible for reporting all issues or errors associated with the EHR solution and acknowledges and agrees that errors shall not be considered confidential, proprietary or trade secrets, and accordingly, shall be releasable to VA or its agents. VA retains the right to share any issue, error or resolution approach."	Concur. Will negotiate with Cerner for inclusion of language.
44	Define the way ahead for 3rd party apps (sunset, rebuild and transition) during the Cerner transition.	This should be evaluated in congruence with the legacy transition plans (pivot plans) of existing systems to Cerner.	None.	Concur.
45	Emphasize the need and resource commitment to achieve clinician consensus, change management, and culture.	RFP Section 5.5.7 Organizational Change Management includes a detailed approach to clinician consensus, change management and culture change.	None.	Concur.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
46	Develop a roadmap for all EHR vendors that specifies how Veterans and providers access and share their data and get that data from A to B. This is not limited to the Cerner solution, but includes legacy and community care systems.	These tasks are not part of the IDIQ and will be addressed via Data Migration Plan and Data Management Strategy across VA.	None.	Concur.
47	Require ability for VA to innovate using the Cerner solution, including support to a Veteran Interoperability Partnership Lab.	<p>RFP Section 5.10: Innovation and Enhancements includes an innovation process, categories and development activities to enable VA innovation activities using the Cerner solution. The language is sufficiently broad to support issuance of a Task Order requiring the Contractor to support interoperability activities including a Veteran Interoperability Partnership Lab.</p> <p>MITRE recommends this lab be independently managed and used to support 3rd party innovators, demonstrate interoperability solutions, validate the effectiveness of interoperability solutions in an end-to-end clinical use case context, and serve as a reference architecture to allow 3rd party stakeholders to exercise innovations.</p>	None.	Concur.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
48	Understand how Cerner will manage data quality, including provenance, error bounds, data looping, security, etc.	<p>The RFP Section 8.6 refers to the use of Quality Assurance Surveillance Plans (QASP), which is intended to establish Contractor accountability to what VA requires and values.</p> <p>VA-NF-T46 requires “The system shall support provenance (chain of custody or ownership) and pedigree (processing history how the data was produced or incorporated) and enable identification, collection, and production of data according to source, custody and ownership and display of data in business, logical, legal or physical models.”</p>	None.	Concur.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
49	<p>Understand how Cerner will provide VA with access to the data model, share data for analytics freely to 3rd parties, increase the amount of computable data exchanged with 3rd parties.</p> <p>Panelists acknowledged this recommendation is a stretch goal.</p>	<p>RFP Section 5.8 address the support to business intelligence and data analytics. Section 5.10.4.1 supports the sharing of Contractor proprietary information/data model extension points (e.g., ingestion and record APIs) with both international and national standards designating organizations. However, current language does not require access to the EHRM data model, supporting understanding of and therefore increase the exchange of computable data with community care providers.</p>	<p>Suggest adding to RFP Section 5.8: “h) Provide VA EHRM data model, underpinning terminology model, tables, definitions, and examples of fully populated Veteran data files. Provide documentation or software that is used for quality checks and that illustrate what data elements are computable.”</p> <p>Suggest adding to Section 5.10.4.1: “n) The Contractor shall support Knowledge Interoperability by supporting the extension of clinical content assets such as terminologies, clinical decision support rules, order sets, etc. This includes the ability to curate, extend, and share that knowledge with clinical partners. This fosters rapid adoption from industry best practices, e.g., clinical professional societies.”</p> <p>Suggest VA obtain a price from the Contractor to provide a report explain the steps involved in accessing the data model, including producing an example data file, and demonstrating how much of the data is computable; provide cost estimates for outside parties to access the data via this mechanism.</p>	Concur.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
50	Understand how the Cerner EHRM solution will improve Veteran and clinician experiences.	<p>RFP Section 5.2.1 describes the EHR application, however does not specifically focus priorities on the Veteran and clinician experience as captured in end-to-end use cases.</p> <p>Section 8.6 refers to the Quality Assurance Surveillance Plans, which include Functional and Non-Functional Key Performance Indicators (KPIs). These KPIs will reflect VA priorities which include improvement of both Veteran and clinician experiences.</p>	Suggest adding to RFP Section 5.2.1.1: “k) Provide for the ability to measure the EHRM performance that contributes to any end-to-end use case, thereby capturing its impact on improving a Veteran and clinician experience.”	Concur.

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Appendix D: Acronyms

API	Application Programming Interface
CCHIE	ClinicalConnect Health Information Exchange
CDS	Clinical Decision Service
DoD	Department of Defense
EHR	Electronic Health Record
EHRM	Electronic Health Record Modernization
FHIR	Fast Healthcare Interoperability Resources
HIE	Health Information Exchange
HL7	Health Level Seven International
IP	Intellectual Property
IT	Information Technology
PWS	Performance Work Statement
RFP	Request for Proposal
UPMC	University of Pittsburgh Medical Center
VA	Department of Veterans Affairs
VACO	VA Central Office
VHA	Veterans Health Administration

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<(b)(6)@carejourney.com>
To: Wine, Marc </o=exchangelabs/ou=exchange
administrative group
(fydibohf23spdlt)/cn=recipients/cn=8012b5920e724c69ad72fa487cfa
6de5-wine, marc>
Cc: Tibbits, Paul A.
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=8c2525e5054a458e9733c5cf6bde
c39e-tibbits_pa>; Sartin, Shannon (CMS/OA)
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<(b)(6)@cms.hhs.gov>; Soundararajan, Jude
<(b)(6)@ssa.gov>; Worthington, Charles
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=6fb5eda5c4a44f54940b391f352a
b1f4-worthington>; Sandoval, Camilo J.
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=91cab99711134d5898a778ab4685
32fc-sandoval, c>; James, Bill </o=exchangelabs/ou=exchange
administrative group
(fydibohf23spdlt)/cn=recipients/cn=d9952c1b903a4b068dc516d4db74
66d4-james_bill>; (b)(6)@ssa.gov
<(b)(6)@ssa.gov>
Bcc:
Subject: [EXTERNAL] Re: Meeting between Dr. Tibbits and Aneesh Chopra to discuss open API
pledge
Date: Sun Nov 04 2018 15:17:46 EST
Attachments: VA EHRM Interoperability-Mitre- Report Jan 2018 _Redacted_FINAL.pdf

Marc, thanks for the summary!

Paul - it was terrific seeing you again, and thanks for hosting all of us! Here's my summary, if useful:

1) "FHIR-first" policy: I'll defer to Shannon/Alex but there is likely more information to come from CMS on how it intends to leverage open APIs to communicate with the care delivery system, and to regulate where appropriate. My suggestion was to establish a policy similar to our "cloud-first" approach back in 2010 whereby all the various sub-departments within the VA know that when starting a new interop project, or investing more in an existing one, that it pursue an "API-first" evaluation to gauge feasibility before relying on whatever legacy method is under way.

This is the direction of 21st Century Cures, and will likely be the focus of the forthcoming ONC information blocking rules. We know that existing API rules are working with respect to Apple Health's experience. They have published a list of every site where they have established a FHIR-based connection (<https://support.apple.com/en-us/HT208647>), which means any consumer app can follow without additional burden. As you likely know, Apple pays NOTHING to connect to these sites; the health systems pay NOTHING to connect with Apple (presuming they have "turned on" the 2015 CEHRT edition as required to meet CMS/ONC rules); and the consumer, of course, pays NOTHING to authorize the transmission.

The FHIR Argonaut Project technical specifications allow physician access, but are NOT required in regulation (as of now). The "bulk access" specifications are ready for testing (ONC has funded a project with Boston Children's - <https://www.hhs.gov/about/news/2018/09/26/hhs-announces-leap-health-it->

winner.html).

2) Execute the Cerner Contract's Open Data Model Provisions: Now that the MITRE report is public, you can see all of the recommendations re: accelerating API standards development (attached). But key provisions that are in the contract have NOT been executed, including:

- publishing Cerner's data model in the NIH/national library of medicine (as Kaiser did with CMT - https://www.nlm.nih.gov/research/umls/cmt/cmt_faq.html)
- engaging the Open API Pledge partners in prioritizing use cases for standards development/acceleration.
- articulating how Cerner intends to make the work it is doing for the VA available to non-VA Cerner clients to lower the costs of future standards adoption/use.

3) Start building SMART Apps: presuming you can adopt/scale up your "Digital Veteran API Gateway" de-coupled from the timeline of the Cerner implementation, then you can do any of the following we discussed:

- Train VA employees for FHIR certification (here's the online course that started last week - http://www.hl7.org/events/fhir_fun.cfm)
- leverage the "micro-purchasing" framework to FHIR-enable popular VISTA apps like the JLV (<https://doi.org/10.1007/s11606-018-4708-z>), or CART-CL (https://www.hsrd.research.va.gov/for_managers/stories/cart-cl.cfm)
- Direct Leidos/Epic to open up the Scheduling API consistent with the Argonaut Specs so third party apps can build tools to help veterans access community care (<https://open.epic.com/Scheduling/FHIR>); and in return, API pledgees like Trinity might reciprocate in the Columbus, OH market.

I look forward to our discussion in a couple of weeks!

Regards,
Aneesh Chopra
President
(703) 672-1315 | CareJourney.com

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On Fri, Nov 2, 2018 at 12:12 PM Wine, Marc <Marc.Wine@va.gov> wrote:

Aneesh, Jude, Drew, Alexandra, Shannon, Paul and Bill;

~ A note to say thank you for yesterday's talks on Open API approach with our office.

"The API pledge encourages health-care providers to commit to work collaboratively with VA to increase the mapping pace of health data to industry standards, including the current and future versions of Fast Healthcare Interoperability Resources (FHIR)."

Sharing some highlight points or ideas from discussion, more ahead; plus, feel free to add, comment, further guidance or input.

*VA is Argonaut Project participant. VA Argonaut Project participant.

http://www.hl7.org/documentcenter/public_temp_51339323-1C23-BA17-0C8BC8A7320A4529/wg/argonaut/Argonaut%20Project%20Charter-12%20Dec%202014-v3.pdf

*VA can encourage standards development.

The purpose of the Argonaut Project is to rapidly develop a first-generation FHIR-based API and Core Data Services specification to enable expanded information sharing for electronic health records and other health information technology based on Internet standards and architectural patterns and styles.

*API standards, priority use case with SMART FHIR Vet Suicide Use Case.

*Open API for suicide information can be shared across healthcare in community.

*VA needs to finish the data model, start with a baseline data model.

*Place data model within Library of Medicine repository as open availability.

*VA can encourage standards development.

*API standards, priority use case with SMART FHIR Vet Suicide Use Case.

*Open API for suicide information can be shared across healthcare in community.

*VA needs to finish the data model, start with a baseline data model.

*Place data model within Library of Medicine repository as open availability.

*SSA wants to ensure ongoing sharing clinical data for SSA claims disability determination.

*FHIR Online Scheduling is online on Columbus, Ohio. FHIR questionnaire, online scheduling, Vets shared patient care, VA should adopt FHIR provider directory.

*VA DOD JVL interface could be provided through app environment.

*Cloud available semantic interoperability tools well available healthcare arena.

*VistA functions easily convertible to FHIR Open Apps platforms. Several Apps could be built from VistA, was mentioned physicians in the private sector Like VistA; suggested train VA programmers who have MUMPS skills, to transform programming, changing EHRM environment.

Again, many thanks.

-----Original Appointment-----

From: Tibbits, Paul A.

Sent: Monday, October 22, 2018 9:41 AM

To: Tibbits, Paul A.; Aneesh Chopra; Wine, Marc; Sartin, Shannon (CMS/OA); Mugge, Alexandra M. (CMS/CCSO); Soundararajan, Jude
Cc: (b)(6)@navhealth.com; Myklegard, Drew; Worthington, Charles; Sandoval, Camilo J.; James, Bill; Luther, Suzanne
Subject: Meeting between Dr. Tibbits and Aneesh Chopra to discuss open API pledge
When: Thursday, November 01, 2018 12:00 PM-1:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: VACO Room 350, 810 Vermont Avenue, NW, Washington, DC 20420

When you get to the building and check in with security, tell them that you are here to see me, Jonathan McBride. They will call me to come and pick you up. 202-461-4419. thanks! JMcB

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(b)(6)

English (United States)
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Find a local number

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PLEASE NOTE WE HAVE NEW PHONE NUMBERS You might want to make your attendees aware of the change.

[!OC([1033])!]

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Filename: VA EHRM Interoperability-Mitre- Report Jan 2018 _Redacted_FINAL.pdf

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Department of Veterans Affairs Electronic Health Modernization

Request for Proposal Interoperability Review Report



Authors: Jay J. Schnitzer, M.D., Ph.D.

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**McLean, VA
January 2018**

Sponsor:
Department of Veterans Affairs

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VA EHRM RFP Interoperability Review Report

January 31, 2018

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VA-18-0298 and VA-18-0299-H-000071

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Executive Summary

This Review Report presents responses to three requests from the Department of Veterans Affairs (VA) to MITRE related to the topic of interoperability within the VA Electronic Health Record Modernization Request for Proposal:

- I. Conduct an external Interoperability Review Panel to review the interoperability language in the existing Request for Proposal (RFP),
- II. Engage an independent and unbiased legal expert to identify the specific changes to the RFP language necessary to implement the recommendations from the Interoperability Review Panel, and
- III. Visit the University of Pittsburgh Medical Center to understand the existing operational multi-vendor solution and interoperability solutions for applicability and scalability to the VA.

I. Interoperability Review Panel

In support of the Secretary of Veterans Affairs, David J. Shulkin, M.D., The MITRE Corporation convened and hosted a VA Electronic Health Record Modernization (EHRM) Request for Proposal (RFP) Interoperability Review Panel on January 5, 2018, at MITRE's McLean headquarters. The invited external senior electronic health record (EHR) interoperability subject matter experts (the Panel) reviewed the interoperability language in the existing RFP and developed joint suggestions and recommendations for VA to consider for incorporation to support the successful execution of a new commercial EHR contract with industry. The Panel affirmed that the primary goal should be seamless Veteran-centric healthcare achieved through true EHR interoperability. Achieving this goal rests on three overarching principles that should be supported by interoperability language in the RFP: 1) free and open access to data, 2) an ecosystem that provides fair access to third parties by creating a level playing field, and 3) a seamless Veteran and health provider (clinician) experience. Four categories of recommendations from the Panel (the first three to the interoperability language in the RFP, and the fourth for future VA contracts) will enable VA to realize this goal on the basis of the underlying principles: 1) commit to full VA-Department of Defense (DoD) interoperability, 2) leverage current and future standards, 3) commit to open, standards-based application programming interfaces (APIs), and 4) use Care in the Community contracts to foster interoperability.

For the first category (commit to full VA-DoD interoperability), the Panel agreed that the Determination and Findings signed by Secretary Shulkin on June 1, 2017, represented the correct approach to interoperability within VA and between VA and DoD. The Panel strongly endorsed the proposed VA "API Gateway" language. The most important specific recommendations included:

- Define the degree of interoperability the solution will provide, ranging from basic file sharing to fully interchangeable, integrated and functionally identical patient records.

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Suggest that the Contractor conduct an annual Interoperability Self-Assessment against current and future standards that shall be specified by the VA; and

- The contract language should include the following elements:
 - performance measures to hold Cerner accountable for reducing the administrative burden in clinician workflow with the objective of increasing efficiency,
 - ability for bulk data export based on standards, with no proprietary formats (e.g., Flat FHIR [Fast Healthcare Interoperability Resources]), and
 - “push” capability to insert patient data back into the VA EHR / Cerner database.

For the second category (leverage current and future standards), the following specific recommendations were among the most important:

- Require that Cerner implement all standards as defined by VA, current and future,
- Engage Cerner as an advocate of the VA and DoD position in all relevant standards-making bodies, and
- Ensure that VA and Veterans have complete access to data.

For the third category (commit to open, standards-based APIs), the Panel voiced the following recommendations:

- Establish clear publishing and access service requirements,
- Provide a VA application platform that supports APIs from third party providers with no barrier to entry, and
- Require implementation of clinical decision support (CDS) Hooks to invoke decision support from within a clinician's EHR workflow.

The body of this report contains multiple additional specific recommendations.

II. Recommendations for RFP Changes

MITRE engaged Morrison & Foerster, LLP as the independent and unbiased legal expert to identify the specific changes to the RFP language necessary to implement the recommendations from the Interoperability Review Panel. Appendix C presents all recommended changes to the RFP.

III. Observations from University of Pittsburgh Medical Center Site Visit

A delegation from VA and MITRE traveled to Pittsburgh, Pennsylvania, on January 19, 2018, for a meeting with representatives from University of Pittsburgh Medical Center (UPMC) Enterprises to discuss aspects of EHR interoperability that UPMC has successfully implemented over the past several years. The report includes an overview of those practices.

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IV. Closing Thoughts and Suggested Next Steps

The Panelists noted that VA cannot achieve true future EHR interoperability through the Cerner RFP alone, or through technology alone. The state of practice today shares only a small portion of available patient data. For VA to succeed in the future, multiple other components must be present and aligned: innovation, policy, standards, customer buy-in, and legislation, to name a few.

The following next steps are recommended for VA consideration:

1. Complete the RFP revisions, conduct appropriate negotiations with the Contractor expeditiously, and complete the contract process as planned. Stand firm during negotiations to maximize ease of access to data and data models for building third party APIs, applications, and services for future community innovations.
2. Continue to work with other federal government agencies and departments with similar interoperability interests and concerns, including, but not limited to, the White House, DoD, Food and Drug Administration (FDA), Centers for Medicare and Medicaid Services (CMS), Office of the National Coordinator for Health Information Technology (ONC), and other parts of the Department of Health and Human Services, to align approaches to EHR interoperability and the development and support of standards government-wide.
3. Support future innovation approaches, including concepts such as an Interoperability Laboratory and outreach to the broader innovation ecosystem (major medical centers, academia, traditional and non-traditional healthcare providers, startups, individual entrepreneurs, others). It is critical to align the innovations planned in VA's Digital Veterans Platform to the VA EHR innovation efforts to ensure consistent continuous improvements to clinician and Veteran health experiences.
4. Create an External Review Panel to provide expert continuous guidance, review, and feedback over the course of the implementation, to help capture best practices from the expert community going forward. Conduct ongoing demonstrations of end-to-end Veteran use cases requiring data sharing across organizational boundaries to validate improvements in Veteran healthcare and reduction of burden for healthcare providers. VA and Contractor will ensure that Federal Advisory Committee Act (FACA) guidelines are followed in leveraging any external review panels.

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Background

The Department of Veterans Affairs (VA) plans to establish seamless care for Veterans throughout the health care provider market. Seamless care requires interoperability between the Department of Defense (DoD), VA, VA affiliates, community partners, electronic health record (EHR) providers, healthcare providers, and vendors. VA directed The MITRE Corporation to independently review the capability of Cerner's proposed EHR solution to seamlessly transmit health records between EHR systems supporting healthcare providers who both use and contribute patient data to a Veteran's health record, to include Veterans Choice Program (VCP) community-care service providers and VA affiliates. This Review Report presents responses to three requests:

- I. Conduct an external Interoperability Review Panel to review the interoperability language in the existing Request for Proposal (RFP),
- II. Engage an independent and unbiased legal expert to identify the specific changes to the RFP language necessary to implement the recommendations from the Interoperability Review Panel, and
- III. Visit the University of Pittsburgh Medical Center to understand the existing operational multi-vendor solution and interoperability solutions for applicability and scalability to VA.

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I. Interoperability Review Panel

Introduction

In support of the Secretary of Veterans Affairs, David J. Shulkin, M.D., MITRE convened and hosted a VA Electronic Health Record Modernization (EHRM) Request for Proposal (RFP) Interoperability Review Panel on January 5, 2018, at MITRE's McLean, VA headquarters. MITRE invited external senior EHR interoperability subject matter experts (hereafter referred to as Panelists) to review the interoperability language in the existing RFP and to develop joint suggestions and recommendations for VA to consider incorporating into the RFP to support the successful execution of a new commercial EHR contract with industry. Eleven Panelists took part in person, and several senior government executives observed the process (see Appendix A for the full list of participants).

Goal

The Interoperability Review Panel sought to provide Secretary Shulkin and his senior leadership team with insights into key best practices and guidance from national experts regarding EHR interoperability. The Panel evaluated the corresponding language in the draft RFP based on successful business transformations and implementations of a new commercial EHR system across a distributed hospital and provider network. This section of the report summarizes the outcome of the Panel: expert recommendations that will inform VA's interoperability contract language. The document also provides actionable and specific best practice recommendations and rationales to enable successful acquisition and implementation of EHR interoperability.

Methodology/Approach

The first part of the session, which lasted for five hours, was conducted as a fish-bowl exercise and was guided by Chatham House Rule. The Panelists sat at a center table, with VA and other government observers sitting at surrounding tables. The second part, which lasted two hours, consisted of a summary debrief to the Secretary and senior VA leadership. The Secretary could ask questions and engage with the Panel throughout the second session. MITRE moderated the session to elicit inputs from all Panelists and to drive alignment toward consensus in the recommendations.

The agenda for the first portion of the session was structured to elicit inputs from all Panelists, with notes captured on-screen as redlines to the RFP interoperability language to ensure recommendations accurately reflected the Panelists' contributions. Subsequently, in a facilitated discussion, the Panelists grouped their recommendations into specific categories in real time. The second portion, as noted, provided opportunities for the Secretary to discuss the recommendations in additional detail.

This section of the report summarizes the discussion that took place. It highlights actionable changes to the interoperability language contained in the RFP and additional recommendations and lessons learned that can enable interoperability of the VA EHRM solution. Text boxes

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throughout the report present direct quotations from Panelists. To ensure participant confidentiality, MITRE has destroyed the transcript and event recording used to develop this report.

Topic Area: VA Definition of Interoperability

The key to modernization is creating greater interoperability with Governmental partners, including DoD, in a way that focuses efforts in support of the Veteran's journey, beginning with their military service. We will partner with others to ensure Veterans can get their benefits, care, and services consistently, easily, and with excellent customer service, no matter where they are throughout their lives. VA will work with local communities, and with other Federal, State, Tribal, and Local Government entities to ensure Veterans get what they need. VA will also continue to leverage the private sector where appropriate and needed to deliver the very best outcomes for Veterans.

– draft VA 2018–2024 Strategic Plan

Enable data sharing, interoperability, and agility through data standardization

VA needs to allow data sharing among various business applications, such as appointment scheduling and business intelligence, as well as ensure transportability of information between sites. Panelists advised VA to leverage and support the best-in-class innovation currently in use within the VA culture. VA must also enable interoperability as the Department integrates the EHR into other supporting systems, both within the VA network and with external health service providers. Agility is necessary for adoption of future innovative technologies and/or if VA wants to upgrade or change the EHR approach. The Panelists cautioned that the current EHR technology is already 20 years old and, as with all industries and information technology (IT) solutions, many possibly disruptive technologies exist on the horizon.

"It really optimizes transportability of best practices, because if you are trying to transfer best practices from one site to another and you have the same system where the best practice is going to land, then it is much easier."

The session began with a discussion on interoperability as currently defined by VA (Figure 1). Prior to establishing a roadmap to inform a nationwide plan to advance health data interoperability, VA must first ensure system-wide interoperability across the Department. Throughout the Review Panel session, the Panelists described and referred to this concept as "Level 1 Interoperability" throughout the Review Panel session; it includes migration of Veteran data from ~130 instances of the Veterans Health Information Systems and Technology Architecture (VistA) to one VA platform.

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Figure 1. VA Definition of EHR Interoperability

“Level 2 Interoperability,” as described in the Panel discussion, addresses the ability for VA to leverage the same Cerner platform used by DoD to ensure seamless care from active service to Veteran status. Once this capability is implemented, the clinical data transformation will allow a true longitudinal view of a Veteran’s record as he or she transitions from DoD to VA for care and other critical services such as benefit adjudication.

“Level 3 Interoperability” will allow both VA and DoD to take an important step toward transforming electronic patient data exchange on a national scale. With the utilization of community healthcare providers via the VA Community of Care initiative and DoD’s Tricare network providers, VA has the opportunity to drive interoperability between DoD and VA as well as with the extensive network of healthcare providers that serve our Nation’s Veterans, active duty service members, and their beneficiaries.

True nationwide EHR interoperability for the entire United States is the ultimate goal, and the Panelists agreed that VA and DoD could reach this goal if the three aforementioned levels of interoperability are achieved. Here, VA has the opportunity to drive clinical transformation and instantiation of a complete EHR for all patients at the national level.

Topic Area: Commit to Full VA-DoD Interoperability

The Panel focused primarily on reviewing the interoperability language within the RFP for the Cerner contract. However as described in Interoperability Levels 1 and 2, the commitment to the seamless integration of VA and DoD health data represents the foundation required to realize interoperability with private sector

“You really have to get the basics done first. Let's just make absolutely sure that the interoperability between DoD and VA [is achieved].”

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healthcare providers.¹ It is important to note that the interoperability levels can be addressed simultaneously and should not be separated, as they must be integrated to efficiently achieve the larger future data sharing ecosystem.

Specify the expectations for interoperability between DoD and VA

During discussions about the expectation that Cerner will provide a single EHR solution to be shared by both DoD and VA, the Panel raised concerns about the lack of specificity in the contract language. Current interoperability data standards address a subset of the Veteran's clinical record and VA has the opportunity to ensure Cerner provides interoperability of all discrete data, at a minimum, between VA and DoD. Adopting the same platform would increase seamless sharing, but the Panel stated that VA should take additional action to ensure that such sharing is realized. The DoD and VA systems should use proprietary database-to-database interoperability if necessary, to maximize interoperability between those two systems. These systems should be configured to meet the distinct needs of each while being connected to each other in a native database-to-database method as necessary, leveraging open interoperability standards wherever possible. As a result, clinicians should experience no differences when they move from a VA system to a DoD system. These data should also be computable, or be made computable according to a specific schedule. VA should consider adding language to the RFP that specifically defines the degree of interoperability the solution will provide, ranging from basic file sharing to fully interchangeable, integrated and functionally identical patient records.

The Panelists also stated that, for VA and DoD collectively, the contractual language should include the following requirements:

- Performance measures to hold Cerner accountable for reducing the administrative burden in clinician workflow with the objective of increasing efficiency
- Capability for bulk data export based on standards, with no proprietary formats (e.g., Flat FHIR [Fast Healthcare Interoperability Resources])
- “Push” capability to insert new patient data back into the VA EHR / Cerner database.

Pivot the RFP to be Veteran-centric and not system-centric

The Panelists discussed the impact of EHR implementations on clinician workflow, describing the issue as one of approaching the implementation as an IT system implementation rather than the preferred Veteran- or clinician-centric implementation. The current RFP appears to be written in a system-centric way rather than leveraging use-cases to describe the Veteran or clinician experience or workflow to characterize the requirement. The Panelists recommended that VA incorporate use-cases to characterize requirements and amend the RFP language to emphasize the Veteran-centric objectives. In addition, Panelists noted that VA should recognize that EHRs do not currently maximize efficient clinical workflow, and that VA specify that the

¹ Healthcare providers is used to refer to community based physicians/specialist and hospitals.

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solution present clinicians with relevant information where needed with a minimum number of “clicks to find.”

Topic Area: Leverage Current and Future Standards

The integrated EHR platform that DoD and VA are implementing provides the opportunity to significantly influence interoperability standards across the healthcare community, addressing gaps and competition among current standards. The Panel recognized that commercial health systems and technologies would realize only limited business value from making data portable between them, but this would lower the barrier to patient movement among healthcare providers.

Engage Cerner as an advocate of the VA and DoD position in all relevant standards-making bodies

The Panel recommended increased VA presence and leadership in national health IT standards-making activities, in coordination with the DoD. Additionally, VA should encourage Cerner to serve as an active advocate of the VA-DoD position and to participate actively in the development and/or evaluation of new standards, policy directives, operating procedures, processes, etc. As an integrated voting bloc, VA, DoD, and Cerner will have the potential to act as a strong driver of national standards. Panelists understood that VA is not currently active in the FHIR community or in the Health Level Seven International (HL7) Argonaut Project.

In addition, Panelists identified a need for standards to exchange patient-reported outcome data for integration into the clinician’s workflow. The current RFP language seemingly puts the burden on Cerner for the development of standards, and the Panel recommended that VA take a more active position. This will ensure that VA will participate and drive implementation when standards mature. Where standards are immature, VA must participate in efforts to accelerate standardization.

Require Cerner to implement all standards as defined by VA, current and future

Because it is unclear where health IT is heading in five years, the Panel strongly suggested VA include contract language to address possible future advancements in the form of standards as defined by VA. At a minimum, VA should seek maximum interoperability with community care organizations, using open interoperability standards wherever possible. This flexibility would ensure that VA does not rely on external stakeholders to determine the standards that VA would be required to accept. The Panel recommended that VA pay particular attention to specific categories of standards: real-time data read/write by care providers and Veterans; interoperability tools; seamless DoD and VA vision records; and principles for data normalization and structure. The Panel also recognized Cerner’s influence in ensuring that the CommonWell network interoperates at the highest possible levels with other networks including CareQuality—an influence that VA should continue to promote.

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VA must own its data; clear ownership and access are critical to success now and in the future

The Panel highlighted an important recommendation regarding data rights that was discussed in the prior VA EHRM Listening Forum on September 7, 2017. The Panel recommended that VA define who has what rights from the perspectives of data ownership, access, and sharing (e.g., VA owns the data and all data products vs. community care providers own the patient data vs. each Veteran owns all of his or her data). Determining the authoritative data source for the various elements of a Veteran's health record is an important Veteran-centric component of interoperability, the longitudinal record, and seamless access to data.

"So, what you need is clear access and clear ownership of your information...you need to have absolutely, undisputed, clear ownership and ability to move the data to any place you want to use it and use it in any way you want to use it when you get there. And not have them [Cerner] be able to say no, that's our data or hinder you in any way or have an unreasonable charge to get it."

VA should define an enterprise-wide policy for all VA data. A suitable policy would include, but not be limited to, EHRM-specific data, and should be issued by the VA Central Office (VACO) or Veterans Health Administration (VHA). VA must have clear ownership of and access to all the information in the EHR and be able to move that information (into new systems or among systems) as needed, now and in the future. Owning the data ensures that it is available regardless of vendor or system. VA must include this in the Cerner contract. Technology innovations occur rapidly in the 21st century, and VA must have full ability to move its data to future systems.

Panelists also recommended that VA publish its data model, for instance to the National Library of Medicine, to further promote commercial interoperability investments. Lastly, Panelists encouraged VA to leverage its investment in the Open Source Electronic Health Record Alliance (OSEHRA) by providing seed money to develop open source connectors between Cerner and Epic, which would encourage other vendors to join in the effort.

Topic Area: Commit to Open, Standards-Based APIs

A significant technology enabler of seamless interoperability among the community of Veteran healthcare providers is the use of Application Programming Interfaces (APIs). These software intermediaries allow disparate EHR applications to communicate with each other and exchange data using standard, defined forms. The Panel emphasized the need for VA to create an environment that would minimize additional costs to community providers in order to interoperate with VA. VA can accomplish this by requiring the new EHR system to expose APIs that support bi-directional data transactions. The Panel further recommended that VA make a commitment to open, standards-based APIs, including the SMART on FHIR/Argonaut APIs, to facilitate the ready and efficient exchange of data with partners providing care in the community and to support open clinical workflow.

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Establish clear publishing and access service requirements

The Panel recognized that data access requirements differ depending on who provides or accesses that data.

Therefore, the Panel recommended that VA be more specific in defining each level of data publishing and access service that is specific to (1) Veteran access (e.g., use of vets.gov); (2) VA clinician access; (3) partner access; and (4) Health Information Exchange (HIE) access. The RFP should include a clear description of identity and access management requirements, including user population types and the association of specific application permissions with particular roles/positions.

Machine-to-machine access is also critical for efficient sharing of information. The Panel recommended that VA ensure that all significant data stored in the software be accessible through APIs with no requirement for creation of custom applications to specifically access VA data. From a forward-looking perspective, VA should require that the EHR system support the ability to access data elements using open standards-based interfaces, and include the ability to interface with legacy data, patient-generated data, and third-party data that resides outside the EHR system. In addition, Cerner should provide the required utility services to support intermediary or peer-to-peer services (e.g., support Veteran-directed or Veteran-mediated requests, data exchange, and ingestion of data from non-VA providers).

“The Contractor should provide all of the data that is currently being provided in the Contractor's patient portal to the consumer via an open standards-based API gateway. The Contractor should also provide all of the reporting data required by federal law to the Veteran via an open standards based API framework, accessible via any application or third-party data store of the Veteran's choice, that's number one.”

Provide a VA application platform that supports APIs from third-party providers with no barrier to entry

Currently vets.gov serves as a portal to Veteran services. The Panel recommended that VA consider using such a portal to connect any third-party application to the EHR solution without requiring fees or vendor permissions. VA should have full

authority to connect any third-party application through one of the standard open APIs conformant with the vendor's API without pre-registering the application with the vendor. This is a very important authority to have in terms of the ability to innovate rapidly, without constraints.

“The API Gateway document is awesome ... world class and future looking.”

The Panelists also reviewed the proposed VA “API Gateway” language provided during the API discussion to anchor the dialogue and concurred that this requirement is fundamental to supporting interoperability. The Panel strongly endorsed the “API Gateway” language. Specifically, the Panelists recommended that VA include a requirement that VA have full authority to connect any third-party application to the Cerner system without requiring prior approval by Cerner. Furthermore, VA should ensure that developers of third-party applications connecting to the VA system via the open standard and VA-defined APIs continue to own their

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intellectual property (IP). From a usability perspective, the Panel also recommended that VA be able to establish the connectivity business rules, such as the ability for applications to remain connected for a reasonable time frame (e.g., 1 year) and to receive automatic notification about patient information updates.

Require implementation of Clinical Decision Service (CDS) Hooks to invoke decision support from within a clinician's EHR workflow

EHRs are essential to efficient delivery of high-quality care, as they provide the clinician with essential decision data at the time required. However, current EHR systems approach workflow from an IT system perspective rather than a clinician's perspective. The latter workflow should, of course, be paramount in the VA EHR implementation, and should also leverage a recent innovation called CDS Hooks. This technology provides the clinician with context-driven decision support and capability by enabling the EHR to trigger third-party services at key events that include ordering medication and opening a patient face sheet. For example, when the VA clinician begins to prescribe medication, a CDS Hook can call an external service that presents the clinician with the list of medications already prescribed to the patient by clinicians outside VA. The Panelists strongly recommended that VA require Cerner to implement and use CDS Hooks within the clinician workflow.

Topic Area: Use Community Care Contracts to Foster Interoperability

The new EHR system must be able to communicate with other EHR systems (e.g., Epic, AllScripts, etc.) within the care community. It is critical that VA ensure the Cerner EHR system remain robust for future interoperability with new products. Cerner must commit itself to supporting other forms of interoperability, such as a presentation layer that is common to other systems (e.g., the App store model). The Panel recommended that prior to execution of the Community Care Act contract VA require third-party providers (and Cerner competitors) to commit to supporting the contract as early adopters.

"Innovations going forward are going to come from multiple directions. And having those interfaces, and going with a general interoperability approach that doesn't fork off from what's happening in the rest of the healthcare system, will allow the Veterans to benefit from technology whether that's coming from Google, from a new company, from an innovative shop within VA -- you end up creating a market with good prices, high value."

Veterans must be able to access and download a computable form of their health data

Panelists noted that access to data represents the biggest problem today. VA must clearly direct Cerner to expose data so it can be used by third parties. In the contract and in conversations with Cerner and third parties, VA must require specifics regarding how Veterans and providers will

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access and share their data. In addition, VA must require that any agreements leave the door open for future standards and technologies.

Panelists believed that VA could achieve this by invoking the principle that the data belongs to the Veteran, rather than by citing specific technologies and standards (given how rapidly they are evolving). Veterans must be able to invoke their right of access to data to support data exchange across all providers (e.g., pull data through an API on their smartphone and push it to their community care provider), now and in the future. Keeping pace with this requirement will drive continual innovation by Cerner and all providers.

VA must own the API layer

Cerner ownership of the API layer (across every customer) poses a real threat to achieving interoperability, speed of innovation, and cost efficiency throughout the network of community care providers. Panelists stated that it is of utmost importance that VA include specific language stipulating that VA and Veterans be able to use third-party applications without having to register them with Cerner. VA must control the API key, not Cerner.

Additionally, VA should require that Cerner provide access to MPages, a developer toolkit, and a programming interface that will enable innovators and third parties to develop APIs.

Require that community care contracts include VA EHR standards to support bi-directional data sharing

Panelists agreed that requiring the support and collaboration of community care providers and participating actively in health IT standards bodies would give VA the opportunity to advance the “national” standard for data sharing—closing any gaps and inconsistencies among federal, industry, and inter-industry standards. VA must require every provider in the chain of a Veteran’s care to support the same standards for data interoperability in order to ensure seamless, best possible care for Veterans. This includes the requirement that all providers and third-party applications, in exchange for using the VA-provided API gateway, provide bi-directional health information back to VA that can be used for context-driven clinical decisions and informatics.

Change the data exchange consent model from “opt in” to “opt out”

To encourage seamless interoperability across all entities providing care to Veterans, the consent model for exchanging data between healthcare providers must be modified to follow an opt-out rather than an opt-in policy, which limits participant numbers. This would allow Veterans to invoke their individual right of access under the Health Information Portability and Accountability Act (HIPAA) to move their data as needed. Many states have already adopted an opt-out consent policy as part of their HIE.² VA can achieve this by aligning its policy to an opt-

² See https://www.healthit.gov/sites/default/files/State%20HIE%20Opt-In%20vs%20Opt-Out%20Policy%20Research_09-30-16_Final.pdf

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out model, supported by the new VA proposed rule³ to allow HIEs to collect a Veteran's consent and electronically attest to the consent to VA in order to obtain the required EHR.

Topic Area: Additional Contract Changes

In addition to the recommendations in the prior sections, the Panelists encouraged VA to add further definitions and clarity in the following areas:

- Require Cerner to provide VA with full read and partial write access to all data elements within the EHR, at VA's sole discretion.
- Require Cerner to make the VA data model, standards, and other similar interoperability changes available in all other non-VA Cerner instances of its EHR platform.
- Clearly define "enabling security framework" so that users know if this means a specific security framework such as those provided by the National Institute of Standards and Technology (NIST), HITRUST, etc.
- Amend "national Common Trust Framework" to specifically refer to the intended source. The Panelists suggested that VA replace this wording with "Trusted Exchange Framework and Common Agreement (TEFCA)" as specified in the 21st Century Cures Act.
- Amend RFP Performance Work Statement (PWS) Section 5.10.4(i) to clarify if the "provider collaboration via secure e-mail using Direct standards" is limited to the Direct protocols and just the Cerner platform.
- Incorporate the model RFP language necessary for Cerner to support the API and SMART on FHIR platform and SMART-enabled applications, as described in Appendix B.

³ See <https://s3.amazonaws.com/public-inspection.federalregister.gov/2018-00758.pdf>

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II. Recommendations for RFP Changes

MITRE engaged Morrison & Foerster, LLP, as the independent and unbiased legal expert to identify the specific changes to the RFP language necessary to implement the recommendations made by the Interoperability Review Panel. MITRE provided Morrison & Foerster, LLP, with the summary recommendations and a copy of the RFP.⁴ In addition, MITRE collected specific ideas for contract language from the Panel. Appendix C presents all recommended RFP changes.

⁴ *Performance Work Statement for the VA Electronic Health Record Modernization System*, Final Version 1.7, Amendment 03, December 4, 2017, Department of Veterans Affairs. File name: 001 - VA EHRM IDIQ PWS (Amended 12.04.2017) - Copy.docx

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III. Observations from University of Pennsylvania Medical Center Site Visit

A delegation from VA and MITRE traveled to Pittsburgh, Pennsylvania, on January 19, 2018, for a meeting with representatives of UPMC Enterprises to discuss aspects of EHR interoperability that UPMC has successfully implemented over the past several years. The VA team, led by John Windom, included Dr. Ashwini Zenooz, (b)(6), John Short, and (b)(6). The MITRE group included Richard Byrne, Jay Schnitzer, (b)(6), (b)(6), and (b)(6). The hosts at UPMC included Dr. Rasu Shrestha, C. Talbot Heppenstall, Jr., Ed McAllister, Dr. Robert Bart, Adam Berger, Diane Michalec, Phyllis Szymanski, and Dr. Amy Urban, as well as additional staff.

The meeting was broken into four parts. Following introductions, Session 1 described the structure of UPMC. Session 2 covered UPMC's last decade of interoperability, and Session 3 centered on the road ahead for UPMC and industry.

Dr. Rasu Shrestha began the meeting by making the introductions and setting the agenda. He stated that UPMC's approach had followed a best-of-breed strategy, as opposed to a best-of-suite strategy, with the intention of failing fast and succeeding often. The overall UPMC structure has four parts: provider services, insurance services, international activities, and enterprises.

During the discussion of interoperability, the UPMC team described its approach to interoperability, called Connected Healthcare, which is based on the commercial product dbMotion of AllScripts. UPMC has created an entity titled ClinicalConnect HIE (CCHIE) that uses HL7. ClinicalConnect exists as a separate 501c(3) company, of which UPMC is a member. CCHIE contains 90 live interfaces. This HIE went live in June 2012; its members consist of 10 hospitals. It competes with three other HIEs in Pennsylvania. The repository contains data on 8.3 million patients, and, in terms of patient consent, CCHIE uses an opt-out model. It currently has connections to four EHRs: Cerner (two versions), Epic, and Varian. Data available within CCHIE spans allergies, clinical documents, diagnosis, encounters, immunizations, labs, medications, problems, and procedures. Much of this data is in the form of documents (Continuity of Care Document (HITSP C32 CCD format, including problems, allergies, and medications); unstructured clinical documents (HITSP C62 format); Consolidated Clinical Document Architecture (C-CDA CCD, including problems, allergies, medications, immunizations, procedures, and insurance); and HL7 Interface (ADT: encounters, documents, imaging documents, and labs only).

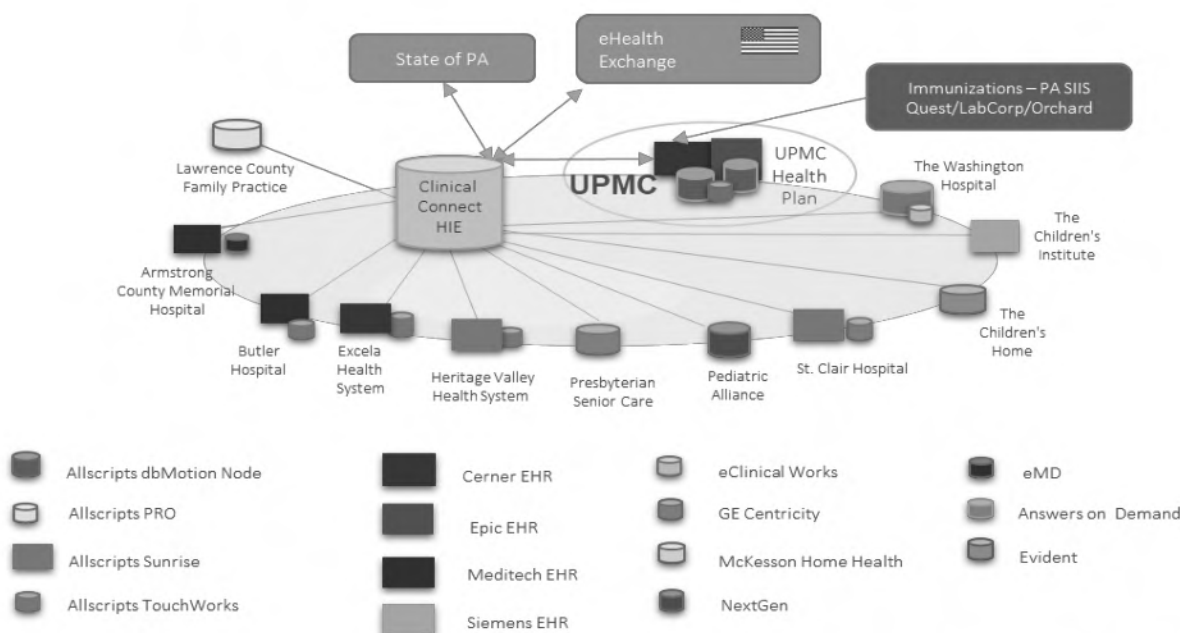
At the point of care dbMotion allows multiple views for the CCHIE: 1) a clinical view, 2) a newer view titled EHR agent, and 3) a Cerner MPage integration view. The next phase of the UPMC work in this regard will consist of integration with CommonWell. Figure 2 shows the architecture of the system. Figure 3 depicts the data feeds.

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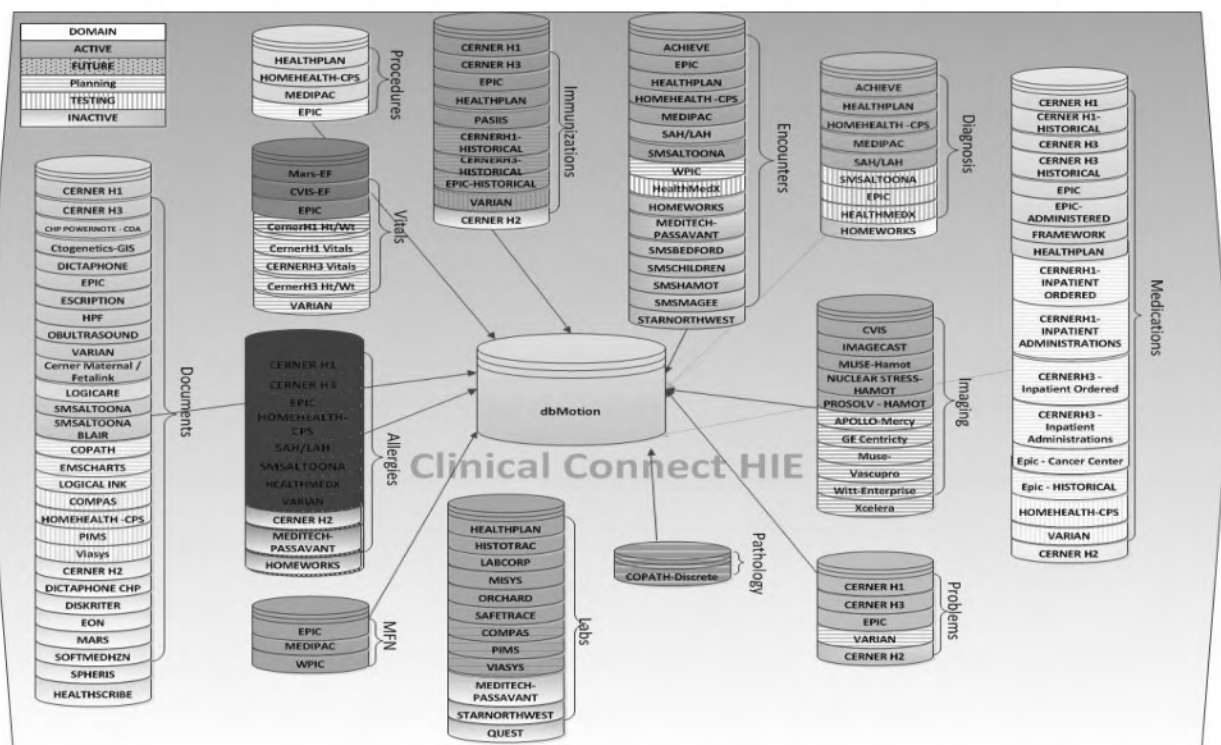
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Source: From UPMC Enterprises, used with permission, for VA use only

Figure 2. ClinicalConnect (Western Pennsylvania) Health Information Exchange



Source: From UPMC Enterprises, used with permission, for VA use only

Figure 3. Interoperability Data Integration

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When asked whether UPMC, or anyone else in the country, has a point-to-point Cerner-to-Epic interoperability solution that does not use an HIE, UPMC representatives responded “No.” Furthermore, UPMC representatives noted that about 10 percent of the total available individual patient data is currently transferred with UPMC’s interoperability system. This is complicated by an ongoing data explosion that doubles the amount of data in UPMC’s system about every 18 months.

Following the presentations and lunch, MITRE Chief Technology Officer Jay Schnitzer saw a live demonstration of CCHIE by Dr. Amy Urban and Dr. Rasu Shrestha. The live demonstration confirmed that all of the documents listed above are visible with equal fidelity and a very similar format from both the UPMC end and the community provider end and perspective. The system requires clinicians to know and understand where documents can be found, and sometimes requires multiple mouse clicks, but all documents can be accessed from the same EHR entry page with one single log in. Additionally, some data elements, including vital signs and labs, can be viewed in the form of graphs as a function of time, including data elements from multiple sources.

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IV. Closing Thoughts and Suggested Next Steps

The Panelists noted that VA cannot achieve true future EHR interoperability through the Cerner RFP alone, or through technology alone. The state of practice today shares only a small portion of available patient data. For VA to succeed in the future, multiple other components must be present and aligned: innovation, policy, standards, customer buy-in, and legislation, to name a few.

The following next steps are recommended for VA consideration:

1. Complete the RFP revisions, conduct appropriate negotiations with the Contractor expeditiously, and complete the Contract process as planned. Stand firm during negotiations to maximize ease of access to data and data models for building third-party APIs, applications, and services for future community innovations.
2. Work with other federal government agencies and departments with similar interoperability interests and concerns, including, but not limited to, the White House, DoD, Food and Drug Administration (FDA), Centers for Medicare and Medicaid Services (CMS), Office of the National Coordinator for Health Information Technology (ONC), and other parts of the Department of Health and Human Services, to align approaches to EHR interoperability and the development and support of standards government-wide.
3. Support future innovation approaches, including concepts such as an Interoperability Laboratory and outreach to the broader innovation ecosystem (major medical centers, academia, traditional and non-traditional healthcare providers, startups, individual entrepreneurs, others). It is critical to align the innovations planned in VA's Digital Veterans Platform to the VA EHR innovation efforts to ensure consistent, continuous improvements to clinician and Veteran health experiences.
4. Create an External Review Panel to provide continuous expert guidance, review, and feedback over the course of the implementation and help capture best practices from the expert community going forward. Conduct ongoing demonstrations of end-to-end Veteran use cases that require data sharing across organizational boundaries to validate improvements in Veteran healthcare and reduce burdens on healthcare providers. VA and Contractor will ensure that Federal Advisory Committee Act (FACA) guidelines are followed in leveraging any external review panels.

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Appendix A: Interoperability Review Forum Participants

Panelists	Title	Organization
Aneesh Chopra	President	CareJourney, former United States Chief Technology Officer
Charles E. (Chuck) Christian	Vice President, Technology and Engagement	Indiana Health Information Exchange
Ryan Howells	Principal	Leavitt Partners, LLC
Andrew Karson, MD	Director, Clinical Decision Support	Massachusetts General Hospital
Chris Klomp	Chief Executive Officer	Collective Medical Technologies, Inc.
Kenneth Mandl, MD	Professor, Biomedical Informatics Director, Computational Health Informatics	Harvard Medical School Boston Children's Hospital
Frank Opelka, MD	Medical Director, Quality and Health Policy	American College of Surgeons
Peter Pronovost, MD, PhD	Director, Armstrong Institute for Patient Safety and Quality Senior Vice President, Patient Safety and Quality	Johns Hopkins University
Christopher J. (Cris) Ross	Chief Information Officer	The Mayo Clinic
Carla Smith	Executive Vice President	The Healthcare Information and Management Systems Society
Paul R. Sutton, MD, PhD	Professor, Biomedical Informatics and Medical Education Associate Medical Director, Inpatient IT Systems, UW Medicine IT Services	University of Washington

VA Participants	Title	Organization
David J. Shulkin, M.D.	Secretary	Department of Veterans Affairs
Carolyn Clancy	Executive in Charge, Veterans Health Administration	Department of Veterans Affairs
Bill James	Acting Assistant Secretary, Office of Information & Technology	Department of Veterans Affairs
John Windom	Program Executive for EHRM and Special Advisor to the Under Secretary for Health	Department of Veterans Affairs
Dr. Ashwini Zenooz	Chief Medical Officer, EHRM; Deputy, Office of Deputy Under Secretary for Health Policy & Services, VHA	Department of Veterans Affairs
John Short	Chief Technology Officer, EHRM; Executive Director of Information Technology System Modernization	Department of Veterans Affairs
(b)(6)	Portfolio Lead: Project Transition and VA Integration, VA Center for Innovation	Department of Veterans Affairs
Camilo Sandoval	Senior White House Advisor, VHA	Department of Veterans Affairs
(b)(6)	Senior Advisor to the Secretary on Strategic Partnerships	Department of Veterans Affairs
(b)(6)	Contracts	Department of Veterans Affairs
Kyle Sheetz	White House Fellow	Department of Veterans Affairs

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Other Federal Government Participants	Title	Organization
(b)(6)	Senior Advisor, Office of Administration	The Centers for Medicare & Medicaid Services
Chris Liddell	Assistant to the President for Strategic Initiatives	The White House, Office of American Innovation
*Bruce Moskowitz, M.D.	Internist	External Expert Participant
Shannon Sartan	Director, Digital Services	The Centers for Medicare & Medicaid Services
Dr. Lauren Thompson	Director	DoD/VA Interagency Program Office
Jon White	Deputy National Coordinator for Mental Health	The United States Department of Health and Human Services/The Office of the National Coordinator for Health Information Technology

*Upon review of this document on October 6, 2018, Fred Mingo, OEHRM FOIA Officer noticed that Dr. Bruce Moskowitz was incorrectly identified and should not be under the entry column "Other Federal Government Participants."

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Appendix B: RFP Language for Purchasing Extensible Health IT

From <https://smarthealthit.org/2017/08/draft-model-rfp-language-for-purchasing-extensible-health-it/>, as of January 15, 2018.

SMART Platform (www.smarthealthit.org) is a project that lays the groundwork for a more flexible approach to sourcing health information technology tools. Like Apple and Android's app stores, SMART provides the means for developers to create and for health systems and providers to easily deploy third-party applications in tandem with their existing electronic health record, data warehouse, or health information exchange platforms.

To deploy SMART-enabled applications, health systems must ensure that their existing health information technology infrastructure supports the SMART on FHIR API. The SMART on FHIR starter set detailed below lists the minimum requirements for supporting the API and SMART-enabled applications. You may wish to augment this list of minimum requirements with suggestions from the Add-On Functionality listed depending on the types of applications your organization wishes to deploy.

This document is intended as a resource for providers and health systems as they draft Request for Proposals (RFPs) and negotiate with their HIT vendors for added functionality. It has multiple authors from across the SMART team and its advisors. Feedback is welcome.

The vendor must support the SMART on FHIR platform, a vendor agnostic API that allows third-party developers to build external apps and services that integrate with the vended product.

At a minimum, the vendor product should include the following components in order to support SMART on FHIR and SMART-enabled applications:

Data Access

- Provide automated, standards-based, read-only access through the FHIR API and FHIR data models (resources) to:
 - a well-defined set of real-time discrete data (including support for the API parameters and resources described in the Argonaut Implementation Guide)
 - free-text clinical notes

Data Manipulation

- Write structured data from third-party apps back to the organization's EHR and, where relevant, a data warehouse, using the FHIR REST API to communicate data including:
 - free-text clinical notes

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Standards-Based App Authorization

- Protect data and identity endpoints with standards-based authorization mechanisms (including the OAuth2 profiles described in the Argonaut Implementation Guide).
- Provide access to data endpoints with an approach that does not require user intervention subsequent to the initial setup such as the method described in the draft SMART Backend Services Profile (<http://docs.smartealthit.org/authorization/backend-services/>) Provide capability to restrict this access to a specified set of patients (roster).
- Enable Health System to connect any third-party app of their choice that is conformant with the API without pre-registering the app with HIT Vendor.
- Enable patients to connect any third-party app of their choice that is conformant with the API without pre-registering the app with HIT Vendor through the OAuth Dynamic Registration protocol.
- Provide OAuth refresh tokens with a duration of one year to patient and provider facing apps that support the SMART Client Secret profile.

Identity Management

- Act as a standards-based Identity Provider using OpenID Connect. This ensures that users can authenticate to plug-in apps using single-sign-in via their existing EHR or patient portal credentials.
- Act as a standards-based relying party to a customer-selected Identity Provider using OpenID Connect. This ensures that users can sign into the EHR or patient portal using an external, hospital-supplied single-sign-on account.

Workflow

- Support standards-based embedding of external application UI (HTML5). This ensures that app developers can build Web apps, and these apps can run directly inside of the EHR.
- Support the launch of external applications in the clinician's workflow (this is not limited to the EHR and should include non-EHR integrated tools such as smart phones and tablets). For example, a clinician that has opted to use a third-party-developed native iPad app to visualize a patient's BMI over time can seamlessly use the application alongside the EHR via single-sign-on.
- Support notifications to and from running applications. For example, an embedded app can notify the EHR when the user is "done" with it.

Add-On Functionality

The provider organization may also want to consider the following additions to its RFP depending on the types of applications it wishes to develop and run in the future.

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Bulk Data Export

- Provide automated access to bulk export of data (complete representation of all data in the MU Common Clinical data set as well as free text notes) using a method like the SMART Flat FHIR draft proposal (<http://docs.smarthealthit.org/flat-fhir>)

Data Manipulation

- Write structured data from third-party apps back to the organization's EHR and, where relevant, a data warehouse, using the FHIR REST API to communicate data including:
 - medication prescriptions
 - lab and diagnostic imaging orders
- Support the dependent transactions necessary to ensure that actions completed by third-party applications using the API are valid in the EHR and data warehouse.

Context-Specific Service Hooks

- Support the ability to call an external standards-based service in specific workflow steps, through the CDS Hooks specification, including:
 - opening a patient record
 - new prescriptions
 - new lab orders
 - new imaging studies

Intellectual Property

The IP of any app integrated through the SMART on FHIR API belongs to the author and not the vendor.

Custom SMART on FHIR Extension to a Proprietary API

Should a vendor neglect to provide SMART on FHIR natively, the client has the right to provide a custom extension to the vendor's API. The ownership of the IP for the custom extension is negotiable between the client and the vendor, but the ownership of the app using the custom extension belongs to its author.

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Appendix C: Recommended RFP Interoperability Language Changes

The table below captures the recommended changes to the VA EHRM RFP.

Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
Commit to Full VA-DoD Interoperability				
1	Define specific capability performance requirement and mechanisms to hold Cerner accountable for reducing the administrative burden in clinician workflow with the objective of increasing efficiency.	<p>The IDIQ RFP PWS Section 5.1.11 speaks to overall EHRM value and performance management monitoring, measurement and reporting. Performance metrics will be defined and enforced at the task order level, since, for example, hosting metrics will be significantly different from deployment metrics.</p> <p>The RFP Section 8.6 refers to the use of Quality Assurance Surveillance Plans (QASP), which will include Functional and Non-Functional Key Performance Indicators (KPIs). The QASP will evolve as the EHRM solution and technology matures and is intended to establish Contractor accountability to what VA requires and values.</p>	None.	Concur.

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2	Define specifically the <i>span</i> of providers who can properly interface with VA under a proposed solution (the number of community providers who would be able to interface with VA under a solution as a function of cost to the provider).	RFP Section 5.2.1(j) states that "The EHRM solution shall support access via tablet or mobile device as adjudicated by joint governance. Platform specifics will be identified by VA at a TO level." Section 5.10.4 states that "The Contractor is required to collaborate with VA affiliates, community partners, EHR providers, healthcare providers, and vendors to advance seamless care throughout the healthcare market."	Suggest amending the language in RFP Section 5.2.1(j) to: "Support broad access via tablet or mobile devices and pursue technology to reduce the burden to the clinicians (e.g., providing third-party provide access to information using light-weight portals and support for future generation mobile devices). Platform specifics shall be adjudicated by joint governance and incorporated by VA at a TO level."	Concur. Will negotiate with Cerner for inclusion of language.
3	Define the <i>degree</i> of interoperability the solution provides (ranging from basic file sharing to fully interchangeable, integrated and functionally identical patient records).	RFP Section 5.10.4 speaks to interoperability and provides sufficient breadth to introduce any additional information exchange requirements in the future, at the sole discretion of VA. Requirements Traceability Matrix (RTM) VA-FR-31 discusses specifics of data management, types of data to be exchanged, and methods of communication.	Suggest adding to RFP Section 5.10.5: "m) The Contractor shall conduct an annual Interoperability Self-Assessment against standards that shall be specified by VA, such as those promulgated by HIMSS or future standards to be identified by VA."	Concur. Will negotiate with Cerner for inclusion.

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4	Pivot the RFP to be Veteran-centric and NOT system-centric. Be mindful that lessons learned are that many EHRs do not currently maximize efficient clinical workflow, so build that in (e.g., using CDS Hooks) and present information where needed with minimum "clicks to find" to reduce clinician burden.	<p>RFP Section 5.2.1 speaks to the EHR application supporting workflows.</p> <p>Section 5.5.1 Workflow development and normalization addresses configuration of workflows to meet VA requirements.</p> <p>Section 5.5.7 Organizational Change Management discusses optimizing workflows for each clinical role.</p> <p>Section 8.6 refers to the use of Quality Assurance Surveillance Plans (QASP) which provides active, continuous measurement against the extensive performance requirements captured in Appendices A-1 and A-2: EHRM Key Performance Indicators to ensure a Veteran-centric approach.</p> <p>RTM section VA-FR-33 requires adoption, development and maintenance of metrics to assess timeliness and quality of healthcare delivery to the patient population.</p> <p>The current RFP language can be clarified to specifically refer to the improvement on Veteran-centric delivery.</p>	<p>Suggest adding to RFP Section 5.5.1: "k) Provide an understanding of how all workflows will impact VA care coordination and management processes (e.g., incorporating community information) to improve Veteran-centric delivery."</p> <p>Also add to Section 5.5.1: "l) Configure workflows to incorporate all community data at the discrete level in support of clinical decision support, care management, disease management. The clinical workflow within the EHR should not require users to visit additional screens to view externally sourced data."</p> <p>See Item 29 for specific recommendations on CDS Hooks.</p>	Concur. Will negotiate with Cerner for inclusion.
5	Require Cerner support end-to-end use cases with major external stakeholders involved.	RFP Section 5.2.1 speaks to the EHR application supporting workflows. The Contractor can only be held responsible for elements of the end-to-end use case that reside within their system.	Suggest adding to RFP Section 5.2.1: "Testing conducted under the Test and Evaluation Program Plan may include specific workflows to inform a demonstration of end-to-end clinical use cases involving external stakeholders."	Concur. Will negotiate with Cerner for inclusion.

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6	Develop detailed data flow requirements between Cerner and all other vendors, be specific using clinical workflow or Veteran/patient-centric use cases.	Detailed data flow requirements should not be part of the RFP as it will result in the limitation of functionality to the specific data flows specified. They will be part of the Test and Evaluation Plan (TEP), where data flows can be added or modified. However, RFP Section 5.5.1 does not indicate that the external community data and end-to-end workflows will be considered in the configuration of standard EHRM workflows.	Suggest adding to RFP Section 5.5.1: "j) The Contractor shall enable configuration of the application that supports external community data without requiring the clinician to go to special screens to see and use external data."	Concur. Will negotiate with Cerner for inclusion.
7	Specifically define the machine-data readability expectations to ensure interoperability between legacy, community care providers, and Cerner (e.g., notes fields).	RTM VA-FR-31 Requires the ability "to manage data structures that are standardized, accessible and editable." Specific requirements are to be incorporated into Task Orders, according to the structure of the contract.	See Item #34 for recommended changes to incorporate the SMART on FHIR and SMART-enabled applications. See Item # 49 for recommended changes to incorporate sharing of the EHRM data model and to improve the amount of computable data shared with community care providers. Suggest VA obtain a description from the Contractor that describes the current baseline of shareable data elements that are computable.	Concur. Will request information from Cerner.
8	Document the DoD-VA EHR Exchange Framework - it can serve as a starting point for the National model.	This is information that should be included as part of acquisition baseline developed by EHRM Program Management Office technical activities.	None.	Concur.
9	Require ability for bulk data export.	RFP Section 5.10.4(g) requires the Contractor to provide a software solution for multilateral standards-based ingestion, normalization, storage and exporting of Health Information Exchange acquired Veteran health information.	None.	Concur.

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10	Require "push" capability to send data back in to VA EHR / Cerner database.	RFP Section 5.10.4(g) requires the Contractor to provide a software solution for multilateral standards-based ingestion, normalization, storage and exporting of Health Information Exchange acquired Veteran health information.	None.	Concur.

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11	Require that VA drive and own the analytical algorithms and not rely on Cerner. Require that VA health organizations be involved in building the logic models with the community and the vendor.	<p>RFP Section 5.1.5 requires the Contractor provide requirements development support but does not include who is responsible for coordinating the community input on the logic models.</p> <p>RFP Section 5.1.7 requires the Contractor support data management but does not state that VA shall provide the analytical algorithms.</p> <p>RFP Section 5.5.1(e) requires the Contractor support robust semantic modeling for the information associated with the workflows. Further detail to achieve this recommendation is also detailed in the Functional Requirement documentation, specifically VA-FR-31. VA should lead and own the analytical algorithms as it is in the best interest of the health community. By owning the algorithms, VA will take the lead on coordinating the effort, but the Contractor will actually develop the algorithms.</p>	<p>Suggest adding to RFP Section 5.1.5: "While the Contractor shall provide such support, VA reserves the right to take the lead on coordinating input from the user and provider communities. VA may, at its discretion, incorporate analytics from other entities, and include them in its future Digital Veterans Platform, with which the EHR must be fully compatible and interoperable."</p> <p>Suggest adding to RFP Section 5.1.7(b): "based on community and VA coordinated analytic algorithms."</p> <p>Suggest adding to RFP Section 5.5.1(e): "VA and its agents shall have unlimited rights to all resulting models and algorithms."</p> <p>Suggest adding to RFP Section 5.5.1(f): "which modeling shall be based on analytical algorithms and data models (1) developed by the Contractor, (2) co-developed by the Contractor in coordination with VA health organizations and the community, (3) developed by VA health organizations, or (4) provided by third-party developers. VA and its agents shall have unlimited rights to all algorithms and logic models incorporated in the EHRM solution, and intellectual property rights will be handled in accordance with § H.2 of the Contract "VA EHRM IP License Agreement" on a Task Order basis."</p>	Concur. Will negotiate with Cerner for inclusion.

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12	Enhance the data quality management requirements to ensure Cerner is responsible for maintaining and resolving data quality issues.	RFP Section 5.1.8 Requires the Contractor to be responsible for data migration, but RFP Section 5.1.7 does not include a requirement for the Contractor to manage data quality internal to its systems.	Suggest adding to RFP Section 5.1.7: "j) Maintain backward compatibility of the EHRM solution in such way as to maintain the quality of the data, to ensure that, once captured, the Government has access to and computational use of the data regardless of the evolution of the EHRM or age of the data k) Identify data quality issues found in data sourced from systems beyond its operational remit, applying the same validations and quality standards to incoming external data that it performs for data originated natively within the EHRM solution. Where the principle of seamless care requires that EHRM accept data that does not meet its internal data quality standards, Contractor shall implement the solution so that any incoming data that does not meet EHRM data quality standards be clearly flagged as such and provide both process and user interface to allow incorrect or missing data to be remedied if possible."	Concur.
13	Define the common identity and access management approach Cerner and others will adopt (e.g., using the Vets.gov identity as the coordinating identity).	RFP Section 5.5.2 describes the required approach to identity and access management across population types and roles. DoD/VA are aligning their efforts to address this going forward.	None.	Concur.
14	Adopt the DoD approach to data and system security.	RFP Section 5.4: Information System Authorization, Testing and Continuous Monitoring describes the security approach for the shared DoD/VA authorization boundary. Joint DoD/VA Strategy will be executed.	None.	Concur.

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15	Share the VA's security approach to medical and endpoint security with DoD for opportunity to leverage and harmonize.	RFP Section 5.4: Information System Authorization, Testing and Continuous Monitoring describes the security approach for the shared DoD/VA authorization boundary. Joint DoD/VA Strategy will be executed.	None.	Concur.
16	Require Cerner to make the VA data model, standards, and other similar interoperability changes available in all other non-VA Cerner instances of its EHR platform.	RFP Section 5.10.4.1 requires opportunity for agreed upon Contractor proprietary information/data model extension points (e.g., ingestion and record APIs) to be provided to both international and national standards designating organizations, however, this does not include providing the capability to other Cerner users, which would extend Cerner interoperability across the community.	Suggest adding to RFP Section 5.10.4.1: "The Contractor shall provide VA access and usage rights into any underlying proprietary terminology/code systems for the purpose of enhancing national standards to address any gaps identified in the EHRM solution. The Contractor shall also make the interoperability capabilities and product enhancements developed under this contract available to non-VA Cerner clients."	Concur. Will negotiate with Cerner for inclusion of language.
17	Clearly define "enabling security framework." Does this mean a specific security framework such as NIST, HITRUST, etc.	VA Requirements Traceability Matrix Non-Functional requirements provides the security requirements to include Access Management, Identity Management, and Information Assurance/Security. RFP Sections 5.4 Information System Authorization, Testing and Continuous Monitoring and 5.5.2 Identity and Access Management provide additional clarification on the security requirements.	None.	Concur.

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Leverage Current and Future Standards				
18	Specifically describe what and how you can read, write, and reconcile re: health data.	Requirement VA-FR-31 describes data management requirements: standardized data and coding terminology systems; use of government endorsed messaging and content standards for interoperability; management of data elements from various entry points etc. The current requirement does not provide understanding of which data elements are being exchanged and the degree of interoperability/ computability supported.	Suggest adding to RFP 5.10.4(m): "The annual assessment will report on the state of each data element (e.g., which are supported in what capacities and in which formats). This will help assure standards implementation consistency and assure standards compliance with evolving national standards."	Concur. Will negotiate with Cerner for inclusion of language.
19	Define who has what rights from a data sharing perspective, impacting APIs (e.g., VA owns the data + all data products vs. Community care provider owns their treatment info on patient vs. patient owns all their own data.)	Requirement VA-FR-31 and RFP Section 5.1.7 describe data management requirements (including syndication). Section 5.5.4 requires "all, significant data stored in the software is accessible through API's" however clarification is needed to ensure access to all data originating from alternate VA-designated authoritative sources.	Suggest adding to RFP 5.5.4: "l) Provide standards-based API access (e.g., FHIR) to all patient data from the VA-designated authoritative data sources for the patient's record within the Contractor's product suite."	Concur. Will negotiate with Cerner for inclusion of language.
20	Identify the authoritative source for the various elements of a Veteran's health record.	RFP Section 5.1.4 requires the Contractor to provide support in the development and/or evaluation of new Standards, Policy Directives, Operating Procedures, Processes, etc. Broader recommendation beyond the scope of the EHRM RFP is for VA to define the authoritative source policy for all VA data. This is not an EHRM specific policy and should be issued by VACO or VHA.	Suggest adding to RFP 5.5.4: "j) assist VA in defining and establishing the authoritative data sources associated with each data element in the EHR (e.g., where it is available and who has access to the information)."	Concur with the language for 5.5.4.

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21	Increase the VA presence and leadership role in standards-making bodies (e.g., Argonaut).	Increasing VA presence and leadership roles in standards-making bodies is an entirely separate recommendation that is not related to the IDIQ.	None.	Concur.
22	Include requirement for Cerner to support VA as an advocate to VA position on all relevant standards-making bodies.	RFP Section 5.1.4 requires Contractor support in the development and/or evaluation of new standards, policy directives, operating procedures, processes and/or assessments on their impacts when implemented.	None.	Concur.
23	Require Cerner to implement all standards as defined by VA.	Requirements Traceability Matrix VA-NJ-177 defines interoperability data standards and specifically cites support of the health data standards identified in the VA-DoD Health Information Technical Standards Profile and by the VA-DoD Interagency Clinical Informatics board.	None.	Concur.
24	Clarify the intended reference in the phrase “national Common Trust Framework.” Does this refer to the Trusted Exchange Framework and Common Agreement (TEFCA) specified in the 21st Century Cures Act?	RFP Section 5.10.4(h) refers imprecisely to the "national Common Trust Framework."	Suggest replacing the phrase in RFP Section 5.10.4 h) "national Common Trust Framework" with “Trusted Exchange Framework and Common Agreement (TEFCA).”	Concur. Will negotiate with Cerner for inclusion of language.
25	Clarify if the “provider collaboration via secure e-mail using Direct standards” is limited to the Direct protocols and just the Cerner platform.	RFP Section 5.10.4(i) requires the Contractor, by IOC, to "provide a capability for provider collaboration via secure e-mail using Direct standards within a Cerner Millennium EHR workflow context."	Suggest adding to RFP Section 5.10.4(i): "the ONC Direct protocol or future VA-designated standard."	Concur. Will negotiate with Cerner for inclusion of language.

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Commit to Open, Standards-Based APIs				
26	Be specific about the VA publishing / access service requirements.	RFP Section 5.5.4 includes requirements that all significant data stored in the software is accessible through API's with no requirement for creation of custom applications to specifically access VA data. RTM VA-NF-7 requires the system to support the ability to access data elements using open standard-based interfaces including legacy data. Clarification is needed to ensure the intention to pursue standards-based APIs.	Suggest adding to RFP Section 5.5.4 – “standards-based” in front of APIs.	Concur. Will negotiate with Cerner for inclusion of language.
27	Define in the contract the VA publishing / access services specifically for (1) Veteran access services (e.g., vets.gov), (2) VA clinician access services, (3) Partner access services, and (4) HIE access service.	RFP Section 5.5.2 describes identity and access management requirements including user population types and the association of specific application permissions tied to roles/positions. RTM VA-NF-6 through 48 describe specific access services required.	None.	Concur.
28	Ensure external API developers can host their apps on an app platform that is NOT controlled by Cerner (and therefore does not require Cerner licensing and approval).	RFP Section 5.1.8(d) requires the contractor analyze and propose a way forward for the capability for external apps to use HealthIntent as a data source. Section 5.5.4 requires the contractor to support data exchanges via the API gateway. Section 5.10.4.2 requires the contractor to work in good faith to integrate the EHRM with the Digital Veterans Platform API gateway.	Suggest replacing the second sentence in 5.10.4.2: “The Contractor shall integrate the EHRM to interoperate with DVP or future state VA platform.”	Concur. Will negotiate with Cerner for inclusion of language.

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29	Include requirement for Cerner to provide CDS Hooks to support open clinician workflow.	RFP Section 5.8 requires the contractor provision robust data analysis toolsets that allow, among other things, analytics and Clinical Decision Support (CDS). VA-NF-T26 requires "integration with Cerner via standards-based interfaces (including but not necessarily limited to support for FHIR APIs and/or OMG CDS API/ HL7 CDS APIs (e.g., CDS Hooks)".	None.	Concur.
30	Specify the required utility services to support intermediary or peer-to-peer services; e.g., support Veteran-directed or Veteran-mediated request, exchange, and ingestion from non-VA providers (via APIs where available).	RFP Section 5.10.4(c) requires "the Contractor shall provide a software solution enabling VA to release and consume, via on-demand access, a Veteran's complete longitudinal health record to and from DoD and connected community partners. The longitudinal record solution shall support Provider-to-Provider record sharing, as well as Provider-Veteran-Provider sharing (Veteran mediated record sharing), including appropriate consent management."	Suggest adding ", regardless of which EHR they use" after "connected community partners...to and from DoD and connected community partners, regardless of which EHR they use."	Concur. Will negotiate with Cerner for inclusion of language.
31	Require that VA has full authority to connect any VA-approved, secure third-party app with the Cerner system, without Cerner approval.	RFP Section 5.7.1 requires the contractor provide on-site integration for devices connecting to the Contractor system. VA is fully responsible for the security of its systems and protection of its data.	Suggest adding to 5.7.1b: "including via the Digital Veterans Platform...support for VA-approved third-party apps connecting to the Contractor system, including via the Digital Veterans Platform." Suggest adding to 5.7.1 – "g) Permit and approve connecting all VA approved secure apps without additional fees or licensing."	Concur. Will negotiate with Cerner for inclusion of language.

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32	Ensure the API developers retain their IP rights when their API is used to connect to the Cerner interface.	<p>RFP Section 5.5.4 sets forth requirements with respect to APIs, including paragraph (e), which provides for the provision and maintenance of a Developer Portal.</p> <p>Section 5.10 generally promotes innovation while 5.10.4.2 requires the Contractor to support the Digital Veterans Platform (DVP) API gateway which is intended to provide a neutral application platform for third party APIs.</p> <p>Additional language is required to promote innovation in the creation of third party applications by removing derivative or cascading intellectual property restrictions/ constraints.</p>	Suggest adding to RFP 5.5.4(e): " and provide policies and procedures for the use of the Developer Portal(s) and APIs that promote innovative third-party API development" and "Third party API developers shall retain their IP rights when their API is used to connect to the Cerner interface, and there will be no derivative IP ownership when third parties consume Cerner terminology through open APIs."	Concur. Will negotiate with Cerner for inclusion of language.
33	Require the ability for 3rd party apps to remain connected to the Cerner system and receive automatic notification on updates (e.g., vaccination). Allow the app to connect without being cut off in accordance with VA security requirements.	RFP Section 5.7.1 requires the contractor provide on-site integration for devices connecting to the Contractor system.	<p>Suggest adding to RFP Section 5.7.1(b): "support for third-party apps connecting to the Contractor system."</p> <p>Suggest adding the following new paragraphs (ii) and (iii) to RFP Section 5.7.1(b): "ii. Provide ability for third-party apps to remain connected to the Contractor system in accordance with VA security requirements and receive automatic notification on updates; and iii. Allow the app to remain connected without interruption lasting longer than a certain period of time to be approved by the Government."</p>	Concur. Will negotiate with Cerner for inclusion of language.

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34	Incorporate the model RFP language necessary for Cerner to support the API and SMART on FHIR platform and SMART-enabled applications.	RFP Section 5.10.4 and the Requirements Traceability Matrix refer to SMART and FHIR based applications but do not incorporate all elements of the suggested functionality such as the support for standards-based embedding of external application UI (HTML5).	Suggest adding to RFP Section 5.10.4: "In addition, the software and services shall support the VA designated standards, such as SMART on FHIR and SMART-enabled applications, or published standard at the time."	Concur. Will negotiate with Cerner for inclusion of language.
Use Community Care Contracts to Foster Interoperability				
35	Before the contract is signed, get Care Act providers and Cerner competitors to commit to support the contract as early adopters.	Pre-contractual activity and pertains to future strategic discussions to drive interoperability in the marketplace.	None.	Concur.
36	Require publication of the EHRM /Cerner clinical data model in the National Library of Medicine (following the Kaiser example).	RFP Section 5.10.4.1 states: In support of the interoperability objectives under this Section, agreed upon Contractor proprietary information/data model extension points (e.g., ingestion and record APIs) may be provided to both international and national standards designating organizations as described and set forth in an applicable Task Order.	None.	Concur.
37	Require the Veteran to be able to invoke their right of access to data as the intermediary to support data exchange (e.g., pull through their API on phone and push to their community care provider).	RFP Section 5.7.1 requires support to Veterans ensuring they can effectively navigate the HealtheLife patient portal and Wellness programs to effectively manage their health.	Suggest adding to RFP Section 5.7.1(c): "using mobile apps, thin-client and thick-client solutions" and "Veterans shall be able to enable sharing of their health data with their community care providers in accordance with all VA-designated national standards."	Concur. Will negotiate with Cerner for inclusion of language.

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38	Require Cerner and the Community Care provider applications provide bi-directional health information in exchange for using the VA-provided API gateway.	RFP Sections 5.10.1, .2, and .3 require support for innovation and other development activities. Section 5.10.4(c) requires "a software solution enabling VA to release and consume, via on-demand access, a Veteran's complete longitudinal health record to and from DoD and connected community partners." VA-NF-61, -63, and -65 requires bi-directional interface in support of Pharmacy. This requirement can be fulfilled by a flat file and does not require the data to be computable.	Suggest adding to RFP Section 5.10.4(c): "The bi-directional health information exchange shall maximize use of discrete data that supports context-driven clinical decisions and informatics."	Concur. Will negotiate with Cerner for inclusion of language.
39	Shift VA policy enabled by the Choice Care Act from "Opt-In" to "Opt-Out" such that the starting assumption is that data can be shared unless the Veteran "opts out."	Review and revise VA policy.	None.	Concur.
Other				
40	Analyze and understand the operational cost to VA to implement and operate under the proposed solution.	Analysis of cost information is not part of a IDIQ contract. It will be done as part of the standard PMO processes.	None.	Concur.

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41	Incorporate requirement that subsequent updates and improvements to the Cerner solution is part of the baseline contract (and cost).	RFP Section 5.2.3 Software Maintenance requires: The Contractor shall provide its commercial support and maintenance services described in its End User License Agreement. Leveraging Contractor's best practices and agreed upon upgrade schedule between DoD and VA, software maintenance includes all releases of the software such as major releases, minor releases, maintenance releases.	None.	Concur.
42	Address the differences between federal and state privacy laws - policy that Federal laws take precedence over state laws.	Federal and state privacy laws can only be addressed through legislation.	None.	Concur.
43	Ensure VA has no gag order: Require Cerner to allow open, public sharing/reporting (e.g., screen shots) on issues or errors with the EHR solution (e.g., if there is a known anomaly, that anomaly and its work-around is shared with the Cerner user community).	RFP Section 5.3.3 - System Quality and Performance Measures and Monitoring is appropriate to capture this requirement. There is no explicit contractual language requiring the contractor to disclose issues or efforts, nor is there language explicitly preserving the right of VA to share such information.	Suggest adding to RFP Section 5.3.3: "Contractor is responsible for reporting all issues or errors associated with the EHR solution and acknowledges and agrees that errors shall not be considered confidential, proprietary or trade secrets, and accordingly, shall be releasable to VA or its agents. VA retains the right to share any issue, error or resolution approach."	Concur. Will negotiate with Cerner for inclusion of language.
44	Define the way ahead for 3rd party apps (sunset, rebuild and transition) during the Cerner transition.	This should be evaluated in congruence with the legacy transition plans (pivot plans) of existing systems to Cerner.	None.	Concur.
45	Emphasize the need and resource commitment to achieve clinician consensus, change management, and culture.	RFP Section 5.5.7 Organizational Change Management includes a detailed approach to clinician consensus, change management and culture change.	None.	Concur.

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46	Develop a roadmap for all EHR vendors that specifies how Veterans and providers access and share their data and get that data from A to B. This is not limited to the Cerner solution, but includes legacy and community care systems.	These tasks are not part of the IDIQ and will be addressed via Data Migration Plan and Data Management Strategy across VA.	None.	Concur.
47	Require ability for VA to innovate using the Cerner solution, including support to a Veteran Interoperability Partnership Lab.	<p>RFP Section 5.10: Innovation and Enhancements includes an innovation process, categories and development activities to enable VA innovation activities using the Cerner solution. The language is sufficiently broad to support issuance of a Task Order requiring the Contractor to support interoperability activities including a Veteran Interoperability Partnership Lab.</p> <p>MITRE recommends this lab be independently managed and used to support 3rd party innovators, demonstrate interoperability solutions, validate the effectiveness of interoperability solutions in an end-to-end clinical use case context, and serve as a reference architecture to allow 3rd party stakeholders to exercise innovations.</p>	None.	Concur.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
48	Understand how Cerner will manage data quality, including provenance, error bounds, data looping, security, etc.	<p>The RFP Section 8.6 refers to the use of Quality Assurance Surveillance Plans (QASP), which is intended to establish Contractor accountability to what VA requires and values.</p> <p>VA-NF-T46 requires “The system shall support provenance (chain of custody or ownership) and pedigree (processing history how the data was produced or incorporated) and enable identification, collection, and production of data according to source, custody and ownership and display of data in business, logical, legal or physical models.”</p>	None.	Concur.

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49	<p>Understand how Cerner will provide VA with access to the data model, share data for analytics freely to 3rd parties, increase the amount of computable data exchanged with 3rd parties.</p> <p>Panelists acknowledged this recommendation is a stretch goal.</p>	<p>RFP Section 5.8 address the support to business intelligence and data analytics. Section 5.10.4.1 supports the sharing of Contractor proprietary information/data model extension points (e.g., ingestion and record APIs) with both international and national standards designating organizations. However, current language does not require access to the EHRM data model, supporting understanding of and therefore increase the exchange of computable data with community care providers.</p>	<p>Suggest adding to RFP Section 5.8: “h) Provide VA EHRM data model, underpinning terminology model, tables, definitions, and examples of fully populated Veteran data files. Provide documentation or software that is used for quality checks and that illustrate what data elements are computable.”</p> <p>Suggest adding to Section 5.10.4.1: “n) The Contractor shall support Knowledge Interoperability by supporting the extension of clinical content assets such as terminologies, clinical decision support rules, order sets, etc. This includes the ability to curate, extend, and share that knowledge with clinical partners. This fosters rapid adoption from industry best practices, e.g., clinical professional societies.”</p> <p>Suggest VA obtain a price from the Contractor to provide a report explain the steps involved in accessing the data model, including producing an example data file, and demonstrating how much of the data is computable; provide cost estimates for outside parties to access the data via this mechanism.</p>	Concur.

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50	Understand how the Cerner EHRM solution will improve Veteran and clinician experiences.	RFP Section 5.2.1 describes the EHR application, however does not specifically focus priorities on the Veteran and clinician experience as captured in end-to-end use cases. Section 8.6 refers to the Quality Assurance Surveillance Plans, which include Functional and Non-Functional Key Performance Indicators (KPIs). These KPIs will reflect VA priorities which include improvement of both Veteran and clinician experiences.	Suggest adding to RFP Section 5.2.1.1: “k) Provide for the ability to measure the EHRM performance that contributes to any end-to-end use case, thereby capturing its impact on improving a Veteran and clinician experience.”	Concur.

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Appendix D: Acronyms

API	Application Programming Interface
CCHIE	ClinicalConnect Health Information Exchange
CDS	Clinical Decision Service
DoD	Department of Defense
EHR	Electronic Health Record
EHRM	Electronic Health Record Modernization
FHIR	Fast Healthcare Interoperability Resources
HIE	Health Information Exchange
HL7	Health Level Seven International
IP	Intellectual Property
IT	Information Technology
PWS	Performance Work Statement
RFP	Request for Proposal
UPMC	University of Pittsburgh Medical Center
VA	Department of Veterans Affairs
VACO	VA Central Office
VHA	Veterans Health Administration

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Strategic Options for the Modernization of VA's EHR

1.0 Executive Summary

The Department of Veterans Affairs (VA) engaged Grant Thornton to assess four strategic options for modernizing its Electronic Health Record (EHR)¹. VA's EHR has not kept pace with industry and does not adequately support the current and future needs of Veterans and VA clinicians. This analysis assessed the market's ability to meet VA's needs through these four strategic options.

Figure 1. EHR Strategic Options

Option 1: COTS	Adopting a Commercial-of-the-shelf (COTS) product for the EHR where VA hosts the solution in a VA purchased, federally certified, secure cloud environment
Option 2: COTS + eHMP/JLV	Adopting a Commercial-of-the-shelf product for the EHR including the Electronic Health Management Platform (eHMP) and the Joint Legacy Viewer (JLV), where VA hosts the solution in a VA purchased, federally certified, secure cloud
Option 3: Commercialized Vista	Providing a gold standard Vista version to a vendor to modernize and provide back to VA as a Software as a Service (SaaS), where the vendor hosts the solution in a federally certified, secure cloud, and provides discounted licensing
Option 4: COTS SaaS	Adopting a COTS product for the EHR where the vendor hosts the solution in a federally certified, secure cloud, and VA licenses software use

The analysis found that the market can provide for VA's EHR needs with low variability in cost among the options leaving the primary differences in the value VA will place on the benefits and risks of owning and administering the software and the degree of influence and autonomy that VA can exercise. *Option 3: Commercialized Vista* is the least expensive option but carries the greatest risk. Potential modernization partners include immature start up business that carry risk in sustaining their business and risk in scaling to the VA enterprise. Other potential partners include mature businesses who do not anticipate adequate economic return for their investment due to low potential market capture. *Option 2: COTS + eHMP/JLV* is the most expensive option and is less aligned with OI&T's strategic priority to buy first. However, both *Option 3: Commercialized Vista* and *Option 2: COTS + eHMP/JLV* provide VA the highest degree of tailorability.

Comparatively, *Option 1: COTS* and *Option 4: COTS SaaS*, cost the same and primarily vary in the control and flexibility VA retains over the EHR. If VA hosts the EHR, it has greater flexibility to integrate new solutions as they emerge in the market, but would bear the responsibility for hosting, which requires IT investment and skills. Unlike *Option 4: COTS SaaS*, where the vendor would bear the responsibility for hosting the EHR, VA would have to negotiate the addition of new solutions during contract negotiations. Because the decision among the strategic options resides on trade-offs between a few key factors, the next section will address those factors and their trade-offs.

¹ According to the Healthcare Information and Management Systems Society (HIMSS), "Electronic Health Record (EHR) is a longitudinal electronic record of patient health information generated by one or more encounters in any care delivery setting. Included in this information are patient demographics, progress notes, problems, medications, vital signs, past medical history, immunizations, laboratory data and radiology reports. ... The EHR has the ability to generate a complete record of a clinical patient encounter - as well as supporting other care-related activities directly or indirectly via interface - including evidence-based decision support, quality management, and outcomes reporting."

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Key Decision Criteria and Trade-offs

We evaluated the strategic options against VA's clinical and IT priorities, strategic direction and future trends in healthcare and health IT to derive the decision criteria. Figure 2 highlights how each option addresses the key decision criteria.

Figure 2. Decision Criteria applied to each Option

Decision Factor	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercialized VistA	Option 4: COTS SaaS
Time to Initial Operating Capability (IOC)	<ul style="list-style-type: none"> Out-of-the-box functionalities fulfilling >80% of VA's needs Estimate 18-24 months to IOC ~ Pilot Site post acquisition 	<ul style="list-style-type: none"> Out-of-the-box functionalities fulfilling >80% of VA's needs Additional time to re-design and scale eHMP to COTS solution Estimate 18-24 months to IOC ~ Pilot Site post acquisition 	<ul style="list-style-type: none"> Requires modernizing a single instance of VistA software prior to implementing, which will add at minimum an additional 12 months Estimate 24-36 months to IOC ~ Pilot Site post acquisition 	<ul style="list-style-type: none"> Out-of-the-box functionalities fulfilling >80% of VA's needs Estimate 18-24 months to IOC ~ Pilot Site post acquisition
Interoperability with other health systems	<ul style="list-style-type: none"> All top tier COTS vendors meet multiple interoperability standards (e.g., FHIR) to create longitudinal record 	<ul style="list-style-type: none"> Same as Option 1: COTS. Also, JLV provides a static view of external records, but does not create the longitudinal record eHMP to provide longitudinal record 	<ul style="list-style-type: none"> Interoperability capability would have to be built into the commercialized VistA solution 	<ul style="list-style-type: none"> All top tier COTS vendors meet multiple interoperability standards (e.g., FHIR) to create longitudinal record
Flexibility	<ul style="list-style-type: none"> VA administered cloud increases VA flexibility to access 3rd party vendors (e.g., best in class population health) 	<ul style="list-style-type: none"> Same as Option 1 for COTS eHMP for new capabilities over time, dependent on development time, which may exceed market timeliness 	<ul style="list-style-type: none"> Vendor administered cloud decreases VA flexibility to access 3rd party vendors (e.g., best in class population health) because vendors may have pre-existing agreements. 	<ul style="list-style-type: none"> Vendor administered cloud decreases VA flexibility to access 3rd party vendors (e.g., best in class population health) because vendors may have pre-existing agreements.
Modernity	<ul style="list-style-type: none"> Industry leading software that regularly upgrades based on best practices and industry innovation Fully integrated solution with modern team based communications 	<ul style="list-style-type: none"> Same as Option 1 for COTS eHMP functionality would need to be de-conflicted of overlapping capability and then integrated with the COTS product. 	<ul style="list-style-type: none"> Vendor's commitment to continuous upgrade contingent on ability to sell the solution at other clients and make a profit VA may have to invest or enter into risk sharing arrangements if the vendor is not able to sell the solution to a critical mass to break even 	<ul style="list-style-type: none"> Same as Option 1: COTS
Tailorability	<ul style="list-style-type: none"> COTS out-of-the-box capabilities allow software configuration to meet end-user practice preference (e.g., physician note templates) 	<ul style="list-style-type: none"> Same as Option 1: COTS eHMP adds capability to tailor because it is a VA developed and managed product 	<ul style="list-style-type: none"> Highest level of tailorability May require additional cost to purchase leading business and clinical workflows from 3rd party entities 	<ul style="list-style-type: none"> Same as Option 1: COTS, except code level change (customization) may not be possible because software may be shared by other clients of the COTS vendor (e.g., DoD)

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Decision Factor	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercialized VistA	Option 4: COTS SaaS
	<ul style="list-style-type: none"> Code level change (customization) incurs additional cost 			
IT Strategic Alignment	<ul style="list-style-type: none"> Aligns with all the strategic priorities except cloud is VA administered 	<ul style="list-style-type: none"> Does <u>not</u> align with the following strategic priorities: buy first, reduce IT footprint 	<ul style="list-style-type: none"> Aligns with all IT priorities 	<ul style="list-style-type: none"> Aligns with all IT priorities
Cost	<ul style="list-style-type: none"> Total = \$16.2B Includes \$184M for VA cloud hosting 	<ul style="list-style-type: none"> Total = \$18.7B Includes \$525M for eHMP cost 	<ul style="list-style-type: none"> Total = \$11.9B Assumes \$830M software costs absorbed by vendor 	<ul style="list-style-type: none"> \$16.0B VA does not incur hosting costs
Relative Risk	<ul style="list-style-type: none"> Medium risk since vendors implement their solutions in this manner routinely 	<ul style="list-style-type: none"> Higher risk due to continued reliance on internally developed software 	<ul style="list-style-type: none"> High risk due to limited partner viability or appetite 	<ul style="list-style-type: none"> Medium risk since vendors have SaaS models in place

Figure 3 provides a detailed breakdown of 15-year costs associated with each option. Grant Thornton surveyed industry to determine the typical cost breakdown of EHR implementations and used the software costs provided by vendor estimates to extrapolate the total cost of vendor and prime integrator costs. Additional details regarding the basis for costs are provided in the Section 4.0 of this document as well as in Appendix D.

Figure 3. Rough Order of Magnitude 15-year Costs of Four Options

Cost Component	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercialized VistA	Option 4: COTS SaaS
Vendor Costs				
Software Implementation Cost	\$4,211,574,074	\$4,736,574,074	\$1,507,526,047	\$3,327,143,519
Post-Go-Live Software Cost	\$1,332,060,606	\$1,332,060,606	\$1,170,000,000	\$2,664,121,212
Vendor Total	\$5,543,634,680	\$6,068,634,680	\$2,677,526,047	\$5,991,264,731
Services Cost				
Change Management Cost	\$1,052,893,519	\$1,527,858,025	\$1,109,047,840	\$1,109,047,840
Data Migration Cost	\$505,382,301	\$505,382,301	\$505,382,301	\$505,382,301
Prime Integrator	\$2,161,941,358	\$2,161,941,358	\$1,707,933,673	\$1,707,933,673
VA PMO Cost	\$2,315,962,964	\$2,565,954,091	\$2,328,407,136	\$2,328,407,136
Cloud Hosting	\$184,673,700	\$184,673,700	-	-
Services Subtotal	\$6,220,853,842	\$6,945,809,474	\$5,650,770,949	\$5,650,770,949
Contingency	\$2,352,897,704	\$2,602,888,831	\$1,665,659,399	\$2,328,407,136
Subtotal	\$14,117,386,226	\$15,617,332,985	\$9,993,956,395	\$13,970,442,816
Complexity Factor*	\$2,117,607,934	\$3,123,466,597	\$1,998,791,279	\$2,095,566,422
Grand Total	\$16,234,994,160	\$18,740,799,583	\$11,992,747,674	\$16,066,009,238

* Due to the early stage of planning for the EHR modernization, lack of business and technical requirements, and the complex nature of transitioning from 130 instances of VistA, we expect additional complexity and cost to be identified during the planning phase of this effort. We therefore added a 15% complexity factor to Options 1 and 4 and a 20% complexity factor to Options 2 and 3 to account for their respective complexities.

Summary

Multiple strategic paths exist for VA's EHR Modernization, each with their own risks, costs and benefits. Understanding the relative value of the different decision criteria will help VA to make its decision. When assessing this relative value, it is helpful to think about the state of VA at two points in time: 1) One (1) year after acquisition of a new EHR, and 2) Ten (10) years after acquisition. These two points in time reflect key junctures where VA will want to understand what success looks like, after which VA can determine which options are most critical to that success. Secretary Shulkin described success for VA at one year as a time similar to where DoD is now with a decision made, a pilot in one area, and steady, deliberate progress being made. For the ten year juncture, research materials and interviewees described a modern health system with readily exchangeable information and tools that enable advanced analytics, including precision medicine and population health, and intelligence into clinical workflows and decision making. Framing a VA leadership discussion around success at these two junctures and prioritizing the decision criteria, will enable VA leaders to select an option that creates a shared vision of success and is in alignment with the full organization's strategic direction.

2.0 Background

The Veterans Health Administration (VHA) is the largest integrated healthcare system in the United States, providing care at more than 1,200 sites of care, serving more than 8.9 million Veterans each year.^{1,2} In many ways, VHA provides care to Veterans similarly to how their commercial counterparts provide care to the general population. However, VHA has a unique mission, patient demographic and disease burden (e.g., combat and exposure related conditions) that has an impact on how they manage the Veteran population and how they execute their quartet mission of caring for the Veterans, supporting medical research, providing medical education and serving as a back-up to DoD during national emergencies.

VHA's goal to provide whole healthcare to Veterans, no matter their geographic location or economic circumstance, drives the need for a network providing the full range of integrated physical and mental healthcare, where clinicians strive to understand health and wellbeing of their patients across all clinical domains and across the Veteran's entire life, to include during times of service and as Veterans, whether they receive care from VA, Department of Defense (DoD) or community care providers.

Because of the demographics of the Veteran population – living in locations from densely urban to sparsely populated – VA must also enable its clinicians to communicate with, treat and support their patients using the most advanced technologies available. To support this mission, VA is assessing available technologies to replace its current electronic health record (EHR) system with a more modern, adaptable technology that can leverage the innovations made in the commercial market to support the whole healthcare of Veterans across the country.

Currently, VHA's EHR runs on the Veterans Information Systems and Technology Architecture (VistA), a platform that was originally developed as a home-grown system more than 30 years ago to support clinical care delivery (with other management functions added over time) and still managed by VA today. At its inception, VistA was a revolutionary concept in healthcare management and served as an industry catalyst in the development of commercial EHR vendors such as Cerner and Epic. Over the years, VistA has proven to be a durable platform for automating both clinical and operational processes and workflows. In fact, VA currently uses VistA to handle supply chain, security, inventory management and a number of other operational activities, in addition to clinical operations such as order entry and pharmacy.

VistA has worked for VA for many decades and has leveraged new technologies such as Bar Code Medication Administration (BCMA) and management support capabilities such as supply chain, inventory management and human resources. Several factors, however, have led VA to question whether continuing with VistA is the best path forward. This is especially true now that more agile and technologically advanced EHR platforms are readily available in the commercial sector that can serve as the launching pad for delivering functionalities (e.g., clinicians reviewing and editing Veteran records and images remotely, Veterans scheduling appointments using mobile devices) that have already become common in the commercial market while adopting new innovations (e.g., provide virtual health including video communication and vitals assessment).

These factors include:

- Technology:** The level of complexity in VistA has increased over the years due to several factors, including the development of VistA into multiple instances as each facility changed its code. In addition, limited enhancements delivered in recent years have led to several sub-modules of VistA lagging behind its commercial off-the-shelf (COTS) counterparts in functionality (e.g., lab, radiology, scheduling). While VA has been a leader in developing and deploying telehealth capabilities, it has fallen behind commercial products in integrating these capabilities within VistA. Additionally, the financial, administrative and other support modules in VistA have lost ground relative to COTS products and do not provide the expected level of service and capability in features such as dynamic/on-demand scheduling, population health and patient engagement. In many ways, industry innovation in EHR technology has leapfrogged VA. This sentiment was echoed by VHA field leadership where three out of five respondents surveyed agreed to the clinicians' desire to have advanced capabilities where the EHR could self-populate the Veteran's information from multiple sources and provide them with salient points and lead them through the visit with minimal keying of data into the system.
- “ We have been leaders in integrated electronic health records, big-data analytic capabilities, and comprehensive care, including provision of support for team-based primary care, integration of behavioral health services, attention to social determinants of health, and caregiver involvement. – Dr. David Shulkin, 2016⁵⁴*
- Complexity:** While clinicians expressed appreciation for the ability to customize VistA to meet their local needs, more than three out of five VHA clinicians and leadership surveyed felt that VistA and its clinical packages were not as user friendly as they could be. They said that “there are too many clicks necessary to get where you need to go, and too many screens to navigate.” Local customization and work arounds have increased the level of complexity and made the integration of new capabilities across the enterprise even more challenging. The downstream impact of high variability and complexity without a universal data model and integrated data management is that data is recorded in different ways across different and often incompatible systems leading to clinician frustration and potential adverse Veteran experiences, such as continuing to send appointment reminder notifications to a Veteran's widow even after the Veteran's death. Lack of standardization can also cause clinical practice variation and may impede organizational ability to pursue emerging models of care and to perform population health analytics.
 - Interoperability:** VistA is deployed throughout VA in a decentralized manner, with 130 instances hosted at VA data centers throughout the country. Coordination and communication among the individual instances of VistA can be a challenge. In addition, with more and more Veterans relying on both VA and community care providers, seven out of ten VISN directors and VHA leadership surveyed felt that information coming from outside providers need to be a part of the record to provide high quality and integrated care. Therefore, to deliver on VHA's mission, VA needs to adopt a platform that can promote and support seamless interoperability of Veteran's health record within the enterprise, with DoD and across organizations in the community. Interoperability and data sharing across disparate systems is an area of growing focus within the health care community and VA with its sheer size and scale can potentially be the catalyst to drive change.

- *Cost:* Recent studies suggest that VA Office of Information and Technology (OI&T) spends as much as 85 percent (\$3.6B) of its annual budget on infrastructure operations and maintenance. That leaves only 15 percent to spend on enhancements and innovations for all VA systems. This level of continued cost to maintain and upgrade VA's IT infrastructure is unsustainable for VA if it plans to modernize its technology footprint and support its clinicians in delivering quality care to its Veterans.

For these reasons, VA leadership is evaluating strategic options that include commercial solutions for its EHR. In support of VA's decision making process, Grant Thornton conducted this strategic analysis to support Secretary of Veterans Affairs Dr. David Shulkin's decision, focusing on VA's future clinical and IT strategies and current and future market trends VA should consider when making a decision.

2.1 Objective

Secretary Shulkin announced in January 2017 that he would make a decision regarding the future of VA's EHR platform in July 2017.³ VA directed Grant Thornton to conduct an independent assessment of four strategic options for modernizing its EHR, with a focus on technological aspects of the implementation. The four strategic options are as follows:

- *Option 1- Commercial off-the-shelf (COTS) EHR:* VA selects and implements a COTS EHR product and uses it for clinical and revenue cycle functionality. Although not all needs may be met by a single vendor, VA has the option to purchase additional COTS functionality and incorporate/integrate it with the primary COTS solution. The COTS EHR product will be hosted within a VA-purchased and operated, federally-certified, secure cloud environment (e.g., Amazon Web Services, Microsoft Azure).
- *Option 2 - COTS EHR combined with the Joint Legacy Viewer (JLV) and electronic Health Management Platform (eHMP):* This option is similar to *Option 1: COTS* plus VA retains the JLV and eHMP, both Vista packages, to develop and implement additional capabilities to fill gaps in COTS EHR capabilities. The COTS EHR product will be hosted within a VA-purchased, federally-certified, secure cloud environment.
- *Option 3 - Vista commercialization:* VA transfers Vista to a third-party vendor, and after modernization by the vendor, VA purchases licenses to use Vista as Software as a Service (SaaS). VA will receive considerations for pricing such as reduced licensing and implementation costs in exchange for Vista intellectual property rights. VA may also negotiate other terms such as directed development of new functionality to meet VA's specific requirements. In the SaaS arrangement, the vendor provides the software on a subscription basis and is responsible for hosting the software in a federally-certified, secure cloud environment.
- *Option 4 - COTS EHR provided as SaaS:* This option is similar to *Option 1: COTS*; however, in this option, the COTS EHR product is hosted and fully supported and managed by the vendor. In the SaaS arrangement, the vendor provides the software on a subscription basis and is responsible for hosting the software in a federally-certified, secure cloud environment.

This paper provides a high-level assessment of the four strategic options introduced above and the associated costs for implementing each option. The paper does not provide a recommendation on EHR vendors, but instead, shares insights captured from VA clinicians, leadership and staff regarding their needs or priorities and how they map to the capabilities offered by each strategic option. To ensure long-term success, the paper also provides key considerations around assessing and upgrading VA's technology infrastructure and hardware so that they may be able to support the strategy and solution preferred by VA.

2.2 Guiding Principles

Selecting an EHR is not just a technology decision; it is an organizational decision. Both the EHR selection process and ensuing implementation will be profoundly transformative. The guiding principles are intended to be enduring and will drive strategic evaluations regarding IT and change management.

Technology and change management decisions must be balanced relative to business and clinical, operational, and architecture and engineering principles. Doing so will maximize the business value of IT as it relates to EHR, mitigate programmatic and technical risks, smooth change integration, enhance systems and data quality, and ensure predictability and transparency in outcomes. These principles are factored into the assessment.

2.2.1 Business and Clinical Principles

- Patient safety and quality care are not compromised during EHR transition.
- A modernized EHR supports Veteran-centered, quality-driven, data-driven, evidence-based and team-based care.
- Clinical priorities drive EHR functional needs. IT trends and disruptive innovations can enable/inform EHR system functions. Requirements are driven by stakeholder principles (e.g., clinician, researcher, care team).
- EHR standardization is balanced with managed configurability.
- A modern EHR is flexible and can adapt to current and future healthcare and information technology trends.
- EHR information is integrated across care settings (e.g. outpatient, inpatient, operating room, emergency department, long-term care, mental health, and telehealth) and provides a longitudinal view of the Veteran's record.
- Decisions are optimized for VA and achieve economies of scale.
- Innovation and agility are non-negotiable.

2.2.2 Operational Principles

- Change management and standardization of clinical processes (including business process reengineering) and data are critical to the success of EHR modernization. EHR modernization must be minimally disruptive to hospital and clinic operations.
- VistA EHR legacy represents the baseline. Consequently, clinical excellence cannot regress as a result of IT changes during EHR modernization.
- VA leverages EHR lessons learned and leading practices from other large scale healthcare organizations (e.g., Kaiser Permanente, DoD and Mayo Clinic).

2.2.3 Architecture and Engineering Principles

- An EHR system should be architected from a system-of-systems perspective, optimizing systems quality (e.g., reliability, scalability, maintainability, usability, etc.).
- EHR systems should promote open architecture and standards so that clinical tools remain available to public and private sector providers.
- An EHR should incorporate standardized business processes and define standardized data and information models, taxonomy and terminologies.
- Data is an essential asset, so integrity and quality must always be sustained. There is zero tolerance for data loss during the transition to a modern EHR system.

- The EHR must be designed and implemented to provide seamless interoperability with DoD and community care providers, and encourage collaborative partnerships.

2.3 Analysis Framework and Approach

In evaluating the four strategic options, Grant Thornton leveraged our strategic evaluation framework for adoption of new enterprise technologies, which is comprised of Strategic Fit and Culture; Functionality and Technology; and Cost/Schedule and Viability (Figure 1 on next page).

- Strategic Fit and Culture contains the business drivers and needs for the technology. In this case, strategic fit and culture assesses the needs and desires of the end user clinicians, Veterans and other EHR users, to determine the right high-level expectations any solution must meet. These often include anything from specific technological options and features, to conformity to an organization's culture, mission and approach. We determined the appropriate strategic and cultural fit criteria through research and interviews with key stakeholders, as described below. Effectively, however, strategic fit and culture criteria focused on the clinical priorities of the organization.
- In Functionality and Technology, we assess the alignment of the solution with the organization's technology strategy and capabilities. Any decision regarding a significant technology investment must take the technological strategy into consideration. We determined the appropriate functionality and technology criteria through analysis of organizational strategy, interviews with stakeholders, Congressional testimony and other speaking engagements by VA leaders, and through review of published materials.
- Cost/Schedule and Viability is simply the assessment of each option's overall costs, any differentiation in schedule and the likelihood of successfully implementing each. We assessed these criteria by applying our experience and expertise supporting similar implementations across industry, and by researching similar implementations in government and commercial healthcare organizations.

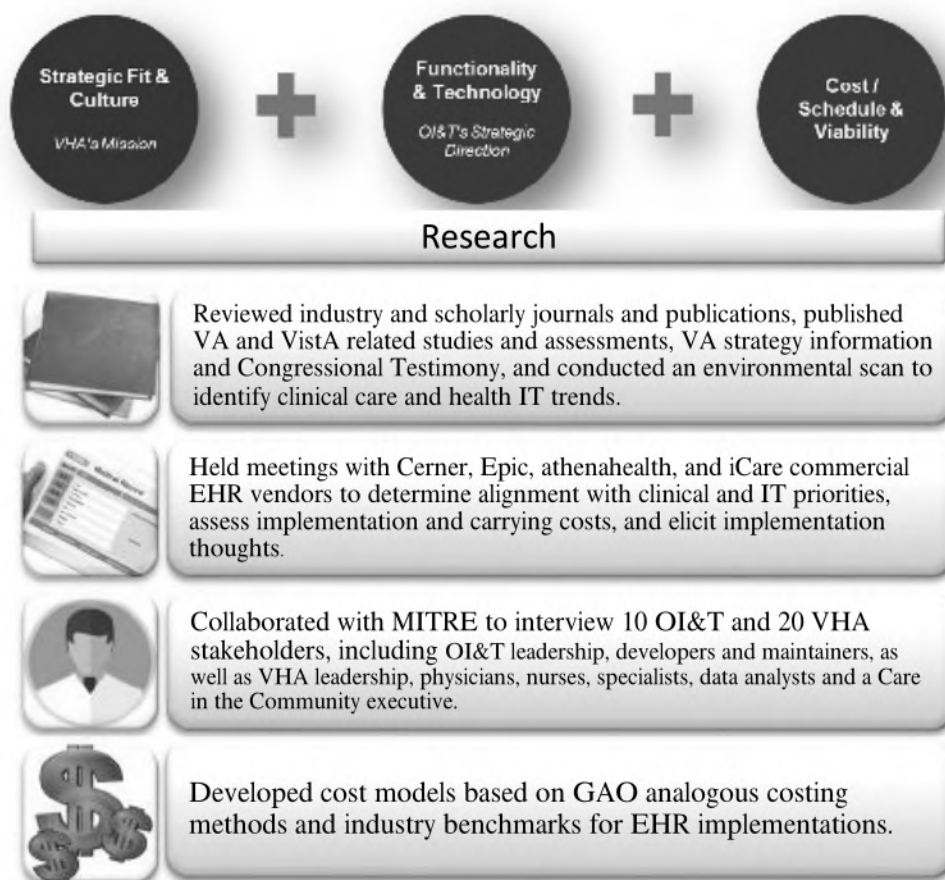
Grant Thornton interviewed key stakeholders across VHA and OI&T to determine the critical factors customers are seeking in a new EHR solution. Interviewees included:

- VHA and OI&T leadership
- Product development professionals with experience supporting VistA and the eHMP
- IT operations and maintenance staff, to understand how VistA is deployed and understand their recommendations for how VA can improve its sustainment footprint
- VHA clinicians and other EHR end users, including primary care, specialty care, allied health professionals, nurses, and revenue cycle staff

The results of the interviews are captured in Appendix B, but facts and findings derived from the interviews are outlined in the Strategic Fit and Culture, Functionality and Technology, and Cost/Schedule and Viability sections below.

Grant Thornton also conducted market research focused on identifying trends in healthcare delivery and health IT that would bear on the decision regarding EHR modernization. Market research included the study of industry publications and research, including Gartner and Forrester, medical journals, leading-edge technology development and the use and management of enterprise data. Market trends identified as impacting the EHR decision are discussed in Appendix C.

Figure 1. Research Framework



Finally, Grant Thornton met with leading EHR vendors to discuss their product offerings and assess fit with VA and OI&T's strategic priorities with respect to the EHR. We assessed products against these priorities, identifying those factors available in the commercial market and those factors that are not. We also discussed pricing methodologies and requested high-level cost estimates to align with our industry research on cost of adopting commercial EHR systems.

3.0 Findings

In order to modernize VA's EHR and enhance its ability to carry out the mission of supporting and providing healthcare for America's Veterans, VA has identified four potential options, each with its own series of benefits and risks, as well as unique cost profiles and trade-offs.

When assessing each of the options, the following should be considered:

- Gaps in specific vendor capability:** In assessing alignment with VA's clinical priorities, we determined that although all priorities are met in the commercial market as a whole, a single vendor may not be able to meet VA's specifications completely, depending on the vendor selected. For example, a single vendor may achieve 90 percent of the solution to VA's specifications, but the other 10 percent is available through other vendors.

- This increases the importance of the VDP should options 1 or 4 be selected. Through the VDP, VA could integrate best-in-class offerings to fill gaps of a single vendor. In essence, the best-of-breed COTS solution must support the multitude of VA care settings and stakeholders.
- Alternatively, in preparing the solicitation, VA could list out all specifications and place the burden on the bidder to fill gaps, ensuring a complete solution. An integrator would then be responsible for combining all necessary capabilities into a comprehensive EHR solution.
- *Interoperability and care in the community and interoperability:* In assessing interoperability, there is great focus on the interoperability between DoD and VA. However, in interviews and in assessing the care continuum for military members as they serve and transition to Veteran status, the interoperability with DoD is critical at the transition stage, but no more important thereafter than interoperability with community care providers. Therefore, interoperability with DoD alone should not drive the decision regarding the option, or the eventual vendor solution.
- *Buy-first rather than buy-only:* In assessing the options and alignment with IT priorities, it is important to note that the “buy-first” strategy is not a “buy-only” strategy. VA has specific needs that others in the market do not, therefore there is the potential that commercial products may not meet all of VA’s needs. This is especially true when considering other management information systems, but may apply to the EHR as well. During interviews, VA staff expressed concern that commercial vendors do not have some of the capability that exists now in VistA; however, the analysis showed that these assumptions are inaccurate and that many of the requested capabilities are in fact available in commercial EHR solutions. Additionally, in many cases, a solution that achieves a vast majority of VA’s desires is more cost-effective than building a system from scratch.

3.1 Strategic and Cultural Fit

This section provides detailed descriptions around the clinical priorities that emerged as important to VA that align with their strategy and culture. They address five areas: unique features, workflow, team based care and mental health. Upon completing our interviews with VHA staff members and leaders, we asked a group of executive leaders from around the country to rank the identified clinical priorities. The two priorities that were most highly rated were having a single view of Veteran data, and support of team-based care.

“[VHA’s vision is to] continue to be the benchmark of excellence and value in healthcare and benefits by providing exemplary services that are both patient-centered and evidence based. This care will be delivered by engaged, collaborative teams in an integrated environment that supports learning, discovery, and continuous improvement. It will emphasize prevention and population health and contribute to the Nation’s well-being through education, research, and service in national emergencies.”⁵³

- *Features unique to VA:* VA has several aspects of their care delivery and patient population that are different than in the non-Veteran healthcare delivery market. These include factors such as:
 - Complex eligibility standards and requirements that exist for Veterans to receive VA healthcare, which impact revenue cycle operations (e.g. inability to bill third parties for service-connected care).
 - Disproportionate disease prevalence in the Veteran population for certain conditions such as amputations, traumatic brain injury, post-traumatic stress disorder (PTSD) and specific

- environmental exposures (e.g. Agent Orange), which require the ability to establish and analyze patient cohorts not typically used in the commercial sector.
 - Broad and increasing emphasis on interaction with community care providers that underscores the need for more sophisticated interoperability and better methods of communication between VA clinicians and non-VA providers.
 - A disproportionately high rural population, with 5.2 million Veterans who constitute more than 30 percent of VA's caseload, which requires sophisticated remote capabilities.
 - A whole health focus that integrates management of psychological, social and physical health.
- **Workflow:** Workflow includes the sequencing of activities a clinician will use to treat a patient; it is adaptable to the specific conditions of the patient but standardized across the enterprise. Specific workflow considerations include:
 - *Longitudinal view of the patient record:* For the purpose of this analysis, VHA clinicians described the longitudinal view of the patient record as the ability to review medical information from community and DoD providers within the Veteran's record in one place, rather than needing to access multiple systems for information. Having a single source for all Veteran records is important so that clinicians can provide high quality care based on timely, accurate information and can also prevent medical errors and reduce waste resulting from duplicate laboratory tests or imaging.⁴⁻⁶ Veterans' care is unique in that they transition from their military service to Veteran status, and their setting of care also changes from DoD to VA and community care providers. A longitudinal view for each patient in an EHR should include current and previous patient demographics, progress notes, problems and medications, as well as vital signs, past medical history, immunizations, laboratory data and radiology reports.
 - *Improved telehealth, mobile and web-based tools:* Due to the geographic dispersion of Veterans across the country, many of whom live in rural areas, VA often employs alternate methods of care delivery. VA Telehealth Services uses both synchronous (e.g. real-time videoconferencing between patients and a care team, remote medical device monitoring) and asynchronous (e.g. acquisition of and transmission of medical data for later review by providers, patient video education modules) communication to supplement face-to-face appointments and make receiving care more convenient for Veterans.^{7,8} These initiatives have improved Veteran satisfaction by reducing travel and wait times.^{8,9} In addition, providers endorse improved access, care coordination, and quality of care.⁹
 - *Scheduling:* Making it easier to schedule appointments, both face-to-face and via telehealth services will improve efficiency and experience for both clinicians and Veterans.
- **Team-based care/PACT:** There is increasing recognition of the value of team-based care to patients and providers, both in the primary care domain and for treatment of complex medical conditions.^{10,11} The patient-centered medical home (PCMH) is one way in which team-based care is delivered, and VA has implemented this through the development of PACT. Implementation of a modern EHR can support PACT through the ability to manage relevant personal health information, allow communication among providers, patients, and care teams, analyze and report on individual and cohort outcomes and quality of care, support providers' clinical decision making, and help patients self-manage their health and medical conditions while collaborating with providers.
- **Analytics and research:** VA stakeholders all stressed the importance of analytics in delivering care. As defined through our interviews, VA clinicians are concerned with two primary types of analytics: real-time clinical decision support tools, powered by analytics, to support the clinician at the point of care; and retrospective analytics, which can support better management of the organization and its workforce, as well as improve care delivery through identification of trends that point to better

























outcomes through different care approaches. The modern EHR should support both of these capabilities, by providing point-of-care analytics in a manner convenient to the provider, as well as the ability to conduct statistical and other analytics on the vast amount of data VA generates.

- Mental health:** Mental health is one of Secretary Shulkin's top priorities; there is a long history of programs and interventions to support Veterans, who are at higher risk for mental health conditions in general, and specifically suffer from higher incidence of PTSD and suicide. VA has long had a well-integrated mental health program that considers the care of the Veteran holistically and is provided in concert with other care that the patient receives from VA. New technologies have the potential to improve risk stratification and tracking of Veterans to support their mental health, especially through vulnerable periods like the transition from active duty to Veteran life. VA stakeholders also described the need for specific options within the EHR to support documentation of mental health appointments, findings and diagnoses that are not available in VistA.

3.2 Summary of Alignment with Strategic and Cultural Fit

After interviews and demonstrations by multiple commercial EHR vendors, Grant Thornton assessed each option with respect to these priorities. There are COTS products that have features addressing all the priorities endorsed by VHA, to include the single view of data and support for team-based care, thus Options 1, 2, and 4 fully align since they all include a COTS product. For *Option 3: Commercialized VistA*, an appropriate vendor contract must ensure alignment with all priorities.

Figure 2. Option Alignment with Clinical Priorities

Clinical Priorities	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercialized VistA	Option 4: COTS SaaS
Addresses features unique to VA				
Workflow				
Team-based care				
Analytics and research				
Mental health				
Interoperability with DoD and community providers				

 Complete
  Partial
 Limited
  Not Aligned

3.3 Functionality and Technology

The second part of our evaluation framework is the functionality and technology associated with the different options. For several years, OI&T has focused on maintaining a significant number of legacy IT systems, including VistA. VA also developed customized software to meet the business needs of its customers, currently spending 85 percent of the IT budget on maintaining physical and application infrastructure. The high percentage of spend reflects both inefficiency in the system and

a level of need that outpaces VA's budget authority. Recently, OI&T began a transformation to decrease the demand for legacy systems and decrease inefficient IT management; and, is now focused on the following key objectives.





















- Single-view of the Veteran and data management:* Data management is critical for providing reliable and actionable data. Within industry, this entails the establishment and systems-based enforcement of holistic data governance models and data standards between and within systems to ensure that critical information is readily available, accurate, and actionable. Within VA, this means that a valid solution will ensure that critical health information is uniquely linked to the Veteran and centrally available at critical decision points. For VA to realize its goal of a single view of the Veteran's record, VA data must be stored within a standardized data model to facilitate the reliability and interoperability of the data between VA, DoD other Federal partners and community providers to provide a longitudinal view of the Veteran and to facilitate continuity of care.
- Strategic sourcing:* Strategic sourcing is an industry and government standard practice of leveraging the combined buying power of large institutions toward a single vendor in order to gain more favorable procurement agreements. While VA has been successful in using its size and buying power to greatly reduce the cost of pharmaceuticals, for example, it has not historically leveraged this capability in the IT arena. VA's strategic sourcing effort is also focused on using VA's size in the market to incent vendors to develop capabilities and technologies that will benefit the healthcare delivery market as a whole.
- Buy-first approach:* Application development is a resource-intensive process and requires tremendous effort to deliver a complete and viable solution. As such, it is only strategically advantageous to pursue this activity when it provides a tangible benefit to VA beyond what is readily available in the commercial space. For VA, this approach requires a transition away from in-house application development and towards sourcing and implementing commercially standardized, supported and maintained applications. Adopting a buy-first approach with respect to EHR applications will enable VA to leverage commercial experience and resources in caring for Veterans.
- Reduced IT footprint:* OI&T currently spends 85 percent of its annual budget on maintaining its diverse IT footprint resulting in high opportunity costs for resources that could be applied elsewhere to advance VA's central mission. To effectively execute the strategy, VA is considering using commercial operational resources and Software/Platform as a Service (SaaS/PaaS) options, such as cloud computing, distributed and on-demand infrastructure, and support options. VA must consider scalability, support and hosting options and network and bandwidth requirements when evaluating EHR options and ensure that the options are able to operate effectively with and within distributed computing, platform and network environments.
- Cloud-based:* An emerging trend within the U.S. healthcare industry is the application of cloud-based (i.e. distributed computing) environments to address the myriad infrastructure issues and shifting requirements faced by the demands of the modern healthcare environment. The application of cloud-based computing allows the supporting infrastructure of EHR systems to scale up or down to





The road ahead is clear, as the VA transforms itself to address future requirements. We need to strengthen our business processes so as to support clinical excellence and accelerate operational improvements to better serve veterans. By rethinking our systems, working with our current partners, and exploring new public-private partnerships, the VA is transitioning from a loose federation of regional systems to a highly integrated enterprise. – Dr. David Shulkin, 2016⁵⁴

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fit the size of the organizational need. For large distributed institutions such as VA, this provides a number of tangible benefits, cost savings and strategic options that are not available with traditional, on-premises environments, such as scalability, drastically reduced hardware costs, maintenance efficiencies and the ability to leverage the large, robust commercial networks that span the country. Currently, VA operates its EHR solution within a series of VA-owned and maintained data centers. This architecture requires a large number of resources to be dedicated solely to infrastructure support. However, by transitioning VA's EHR infrastructure to the cloud, VA could potentially realize substantial resource savings and redirect those resources toward other, more Veteran-focused initiatives. In evaluating its future EHR options, VA will want to consider solutions can fully operate within the modern, cloud-based computing environments.

Figure 3. Alignment to Strategic Evaluation Criteria

Evaluation Criteria	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercialized Vista	Option 4: COTS SaaS
Single-view of the Veteran and data management				
Strategic sourcing				
Buy-first approach				
Reduced IT footprint				
Cloud-based				

 Complete
  Partial
 Limited
  Not Aligned

As illustrated in Figure 3, Options 1, 3, and 4 fully align with VA's IT strategic direction. *Option 2: COTS + eHMP* partially aligns because it relies on internal VA development to support and advance the eHMP, which does not align with the strategic sourcing and buy-first.

In addition to VA's IT strategy, we identified technical evaluation criteria to assess VA's current capabilities to support the options under consideration. The technical evaluation criteria are:

- Network resource requirements:** Network resources are required by any solution that requires any machine, service, process or facility to connect to another. In broad terms, network resources affect the speed and responsiveness of activities within both the EHR interface and between the EHR environment and ancillary systems. Every solution will require a certain level of network resources in order to operate, however, the specific limiting resources can be drastically different between the options and this evaluation will focus on the bandwidth, connectivity, latency mitigation and topological layout of each considered solution.
- Adaptability "future proofing":** Adaptability is the capacity of a solution to be flexible enough in terms of allowed clinical processes and workflows and underlying and integrated technologies to meet VA's immediate needs while providing a stable and robust platform to support the new care models and technologies. While all enterprise class EHRs will be configurable to address the immediate needs of VA, certain architectures will be more accessible and adaptable in terms of data and processes, which

















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will allow VA greater ability and a lower barrier to mold a given solution to changes in the clinical landscape.

- **Scalability:** Simply put, scalability is the ability of a solution to efficiently scale to an organization the size of VA. Scalability takes into account not only the approach and architecture needed to scale a solution, but the level of complexity in both required systems and processes necessary to achieve this. Additionally, this takes into account the complexity of migrating workflow and processes between sites as well as the ease of expanding or contracting solution instances.
- **Redundancy:** In order for VA to continue to operate and provide critical services to Veterans, any EHR system must be adept at effectively providing needed information to doctors, nurses and other clinical staff at all times while still providing a “single view” of the Veteran. Additionally, it must provide methodology to ensure that records are not lost or corrupted, that no or minimal single points of failure exist within the network, and address concurrency issues arising from interruptions in end-to-end network coverage across the VA system.

Figure 4 illustrates each solution's degree of alignment with the above technical evaluation criteria. As templated, all solutions fulfill the intentions of these criteria to a certain extent, however *Option 2: COTS + eHMP* has minor abrogation relative to the other solutions.

Figure 4. Alignment to Technical Evaluation Criteria

Evaluation Criteria	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercialized VistA	Option 4: COTS SaaS
Network resource requirements				
Adaptability				
Scalability				
Redundancy				

 Complete
  Limited
  Partial
  Not Aligned

Options 1 and 4 differ in adaptability due to differences in implementation model, namely SaaS (*Option 4: COTS SaaS*) to non-SaaS, where VA's ability to modify their solution is attenuated by the constraints of the SaaS implementation. Under a SaaS option, VA would not have direct access to the database backend and thus would be slightly limited in the capability to directly interface with the data and thus to conduct operations on said data without going through an intermediary approved by the SaaS provider.

Option 2: COTS + eHMP allows for a high degree of adaptability due to its utilization of the eHMP project which allows VA to directly drive the future capability of eHMP and thus the solution itself. However, this capability is realized through the implementation of additional software on-top on the COTS EHR resulting in increased network demands and increasing the effort necessary to scale and establish redundancy analogous to an infrastructure supporting a COTS system without the addition of the eHMP's needs.

3.4 Benefits

The adoption of an enterprise-wide, standardized commercial EHR product, supported by a vendor with an established track record and well-integrated modules may improve the perception of VA and underscore the organization's commitment to providing high quality care to Veterans in the 21st century.

Figure 5. Benefits of Options

Benefits Category	Evaluation Criteria	Option 1: COTS	Option 2: COTS+ eHMP/JLV	Option 3: VistA Comm.	Option 4: COTS SaaS
Defined product roadmap	<ul style="list-style-type: none"> Clear vision for software evolution Ability to keep pace with market demands, trends and innovations 	HIGH	MEDIUM	LOW	HIGH
Access to and ownership of data	<ul style="list-style-type: none"> VA has direct administrative and/or system authority 	HIGH	HIGH	LOW	LOW
				HIGH	HIGH
Ability to customize EHR product	<ul style="list-style-type: none"> VA has the ability to direct product development 	MEDIUM	HIGH	HIGH	LOW

- Defined product roadmap:** Established COTS vendors are expected to have a long term vision for their product growth strategy that can help them stay on top. Options 1, 2 and 4 offer VA such an opportunity to partner with leading COTS vendors who may be able to quickly modernize VA's care delivery process and help the agency realize its mission of Veteran-centric care. However, that *Option 2: COTS + eHMP* is rated slightly lower than Options 1 and 4 because within *Option 2: COTS + eHMP*, the eHMP package is still in its early stages of deployment as it has not yet been scaled to the enterprise level or designed to integrate with non-VistA EHR's. Similarly, *Option 3: Commercialized VistA* is also rated lower on the defined product roadmap benefit scale compared to the other options because in this scenario, the vendor is expected to design and build a custom EHR tailored for VA.
- Access to and ownership of data:** *Option 1: COTS* and *Option 2: COTS + eHMP* include implementation on a VA-managed, federally-certified, secure cloud environment. While VA will not own the actual servers or data centers, they will directly manage the cloud environment and database engines supporting the EHR, and would have direct access to the live data stored within the EHR. Therefore, direct access and control to the live data and the ability to use it with any third-party solutions desired without outside vendor involvement are the primary reasons for rating Options 1 and 2 higher than Options 3 and 4. However, VA can mitigate the concern for access to the data for Options 3 and 4 by ensuring appropriate language is included in the contract for the EHR that guarantees VA's right to access the data for any reason, and to allow VA to connect any third party software VA chooses directly to the SaaS environment and solution, regardless of other agreements the COTS SaaS vendor has made. This agreement would likely have cost implications that could not be estimated, as this type of arrangement is atypical.

- *Ability to customize EHR product:* While VA may not be able to customize a COTS product at the facility level because of its size and scale, VA has the ability to influence the vendor's product development at different degrees. However, Options 2 and 3 provide greater flexibility for VA to customize the solution. For instance, *Option 2: COTS + eHMP* leaves open the possibility for VA to develop capabilities on its own through the eHMP, while *Option 3: Commercialized VistA* provides VA the option to direct or otherwise have a significant voice in the future development of the solution. Comparatively, *Option 4: COTS SaaS* rates the lowest in terms of customizability because of its SaaS arrangement.

Each option provides benefits to one extent or another. In applying the benefits to a decision regarding the modernization of the EHR, VA leadership can determine which benefits are more important to VA going forward, and then assess the benefits against the other factors assessed in this paper.

3.5 Risks

There are always risks associated with any large enterprise-wide system implementation. The figure below highlights key risks VA leadership must be aware of when selecting the best strategic option for EHR implementation. The risks were identified and analyzed based on VHA and OI&T stakeholder interviews, COTS vendor interviews and demonstrations, industry research and Grant Thornton experience conducting EHR implementations.

Figure 6. Risks of Options

Risk Category	Evaluation Criteria	Option 1: COTS	Option 2: COTS+ eHMP	Option 3: VistA Comm.	Option 4: COTS SaaS
Transitioning to a cloud environment	<ul style="list-style-type: none"> • Experience with cloud • Resource skillset 	HIGH	HIGH	HIGH	MEDIUM
Backup and disaster recovery management (DRM)	<ul style="list-style-type: none"> • Infrastructure reliability • Redundancy protocols in place 	HIGH	HIGH	LOW	LOW
Integration of third-party COTS applications	<ul style="list-style-type: none"> • COTS capabilities can address VHA's needs (e.g., population health, decision support, mental health, user-friendly, secure messaging) 	LOW	LOW	MEDIUM	MEDIUM
Loss of control over future EHR capabilities development*	<ul style="list-style-type: none"> • VA's level of autonomy and control over its future EHR solution 	HIGH MEDIUM	MEDIUM	LOW	HIGH MEDIUM
Demand on network infrastructure	<ul style="list-style-type: none"> • Relative bandwidth requirement at the VAMC and satellite facilities 	MEDIUM	HIGH	MEDIUM	MEDIUM
Required additional development	<ul style="list-style-type: none"> • Maturity of software and its capabilities 	LOW	HIGH	HIGH	LOW

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Disruption to workflow during implementation	• Clinical workflows and business processes will be redesigned	HIGH	HIGH	HIGH	HIGH
Availability of Vendors	• The known availability of vendors in the market that can support the option.	LOW	LOW	HIGH	LOW

*Traditionally, this risk is high as commercial vendors control the product roadmap. VA however could reduce this risk by contractually requiring some control over the direction the vendor takes with the product.

- *Transitioning to cloud environment:* VA has 35 years of experience developing and managing their own data centers and other on-premises installations of VistA and supporting software. However, transitioning to a cloud environment requires different skill sets and competencies. The skill gap and lack of experience with cloud management poses risk, as existing experienced system administrators and managers would have to undergo retraining or new system administrators would need to be hired. Hiring new administrators would require training in VA processes and operations. This risk is common to both Options 1 and 2, as both of these options have the COTS EHR hosted within a VA-purchased, federally-certified, secure cloud environment where VA's OI&T resources are responsible for managing and administering the data and the hardware setup within the cloud environment. Option 3: Commercialized VistA is also high risk because without a defined partner, VA does not yet know whether the eventual partner will be conversant in cloud deployment. Finally, *Option 4: COTS SaaS* is less risky to VA because the vendor is already operating a SaaS environment for other clients. There is some risk due to scaling to VA's needs, but this is not as high as Options 1-3.
- *Backup and disaster recovery management (DRM):* As VA transitions to a cloud environment, backup systems and disaster recovery will need to be considered in new ways and existing back-up plans would need to be reevaluated. Migration to a commercial cloud provider – as in Options 3 and 4 – alleviates the hardware component of disaster recovery. However, VA would still bear responsibility for ensuring that failover and redundancy protocols work seamlessly to minimize disruption to clinical workflow and have zero impact to patient safety. The management and planning of these activities is a significant undertaking given the size and complexity of VA.
- *Integration of non-COTS EHR applications:* Unlike Options 3 and 4, VA would own the COTS solution in Options 1 and 2. Therefore, by leveraging the VA Digital Platform strategy in Options 1 and 2, VA can potentially connect with any non-COTS EHR application in the market to achieve its desired goals. However this advantage would be significantly reduced in Options 3 and 4 where VA has limited direct control of the software due to potential contractual restrictions and SaaS implementation.
- *Loss of control over future EHR capabilities development:* While the adoption of a COTS EHR solution allows VA to keep pace with industry leaders in health care information technology, VA may still encounter limitations with a COTS solution because a COTS vendor may be either unwilling or incapable of providing VA-requested, non-standard enhancements and functionality post go-live. Options 1 and 4 are considered high risk for this reason, but the risk could be lowered should VA ensure contract language allows them to direct the development of future capabilities. We therefore assessed the options as either high or low, dependent on VA's ability to negotiate such development control. *Option 2: COTS + eHMP* is less risky because VA would be able to adapt eHMP in the future to accommodate new technologies it can develop. Finally, *Option 3: Commercialized VistA* is low risk

because VA would negotiate some control over future development and incorporation of new technologies.

- *Demand on network infrastructure: Option 2: COTS + eHMP* may have greater bandwidth requirements at VAMC and satellite facilities than Options 1, 3, and 4 as the network will have to accommodate traffic from both the EHR and the eHMP applications; this could be burdensome in areas where bandwidth is limited.
- *Required additional development:* While the ability to direct development is a benefit, an associated risk is that of taking on additional development. Options 2 and 3 by design require further development and customization. For instance, the eHMP software was designed specifically for VistA and therefore the software in its current version (2.0) will require code level redesign to seamlessly integrate with a COTS product. Likewise, the commercialized VistA in *Option 3: Commercialized VistA* also requires code level upgrades so that it can address both the unique requirements of VA along with the modernized features found in standard COTS products. Thus, Options 2 and 3 share a much higher risk compared to Options 1 and 4 that do not require code level updates.
- *Disruption to workflow during implementation:* All four options carry significant risk in disruption to existing workflow. This is inherent in a change to any new solution. VA will manage the risk through significant investment in change management, training, and hands-on support during and immediately after implementation.
- *Availability of Vendors:* Options 1, 2 and 4 are all low risk due to the availability of several vendors in the market to support the option (either through the COTS solutions or through continued development of eHMP). *Option 3: Commercialized VistA* however, is high risk. In assessing several the type of partner VA needs to make *Option 3: Commercialized VistA* successful, there may be few, if any, vendors in the market willing to support this option. Because of the criticality of finding a viable partner for this option – success is completely contingent on it – *Option 3: Commercialized VistA* should be viewed as an overall high risk.

As with benefits, the options hold differentiated risk as compared with one another. The critical factors in deciding on a modernization approach is determining the level of risk appetite the organization has, and which types of risk are more acceptable. These risks can then be balanced against alignment with strategy, benefits and costs.

3.6 Summary of Non-Cost Assessment

As noted in the Executive Summary, the combination of alignment with clinical and IT priorities, benefits and risks, provide the best opportunity to assess the options against one another. VA leadership, upon determining the relative importance of these factors, can use the analysis in Figure 7 below, to support the decision:

Figure 7. Decision Criteria applied to each Option

Decision Factor	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercialized VistA	Option 4: COTS SaaS
Time to Initial Operating Capability (IOC)	<ul style="list-style-type: none"> • Out-of-the-box functionalities fulfilling >80% of VA's needs • Estimate 18-24 months to IOC ~ 	<ul style="list-style-type: none"> • Out-of-the-box functionalities fulfilling >80% of VA's needs • Additional time to re-design and scale eHMP to COTS solution 	<ul style="list-style-type: none"> • Requires modernizing a single instance of VistA software prior to implementing, which will add at minimum an additional 12 months 	<ul style="list-style-type: none"> • Out-of-the-box functionalities fulfilling >80% of VA's needs • Estimate 18-24 months to IOC ~ Pilot Site post acquisition

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Decision Factor	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercialized VistA	Option 4: COTS SaaS
	Pilot Site post acquisition	<ul style="list-style-type: none"> Estimate 18-24 months to IOC ~ Pilot Site post acquisition 	<ul style="list-style-type: none"> Estimate 24-36 months to IOC ~ Pilot Site post acquisition 	
Interoperability with other health systems	<ul style="list-style-type: none"> All top tier COTS vendors meet multiple interoperability standards (e.g., FHIR) to create longitudinal record 	<ul style="list-style-type: none"> Same as Option 1: COTS. Also, JLV provides a static view of external records, but does not create the longitudinal record eHMP to provide longitudinal record 	<ul style="list-style-type: none"> Interoperability capability would have to be built into the commercialized VistA solution 	<ul style="list-style-type: none"> All top tier COTS vendors meet multiple interoperability standards (e.g., FHIR) to create longitudinal record
Flexibility	<ul style="list-style-type: none"> VA administered cloud increases VA flexibility to access 3rd party vendors (e.g., best in class population health) 	<ul style="list-style-type: none"> Same as Option 1 for COTS eHMP for new capabilities over time, dependent on development time, which may exceed market timeliness 	<ul style="list-style-type: none"> Vendor administered cloud decreases VA flexibility to access 3rd party vendors (e.g., best in class population health) because vendors may have pre-existing agreements. 	<ul style="list-style-type: none"> Vendor administered cloud decreases VA flexibility to access 3rd party vendors (e.g., best in class population health) because vendors may have pre-existing agreements.
Modernity	<ul style="list-style-type: none"> Industry leading software that regularly upgrades based on best practices and industry innovation Fully integrated solution with modern team based communications 	<ul style="list-style-type: none"> Same as Option 1 for COTS eHMP functionality would need to be de-conflicted of overlapping capability and then integrated with the COTS product. 	<ul style="list-style-type: none"> Vendor's commitment to continuous upgrade contingent on ability to sell the solution at other clients and make a profit VA may have to invest or enter into risk sharing arrangements if the vendor is not able to sell the solution to a critical mass to break even 	<ul style="list-style-type: none"> Same as Option 1: COTS
Tailorability	<ul style="list-style-type: none"> COTS out-of-the-box capabilities allow software configuration to meet end-user practice preference (e.g., physician note templates) Code level change (customization) incurs additional cost 	<ul style="list-style-type: none"> Same as Option 1: COTS eHMP adds capability to tailor because it is a VA developed and managed product 	<ul style="list-style-type: none"> Highest level of tailorability May require additional cost to purchase leading business and clinical workflows from 3rd party entities 	<ul style="list-style-type: none"> Same as Option 1: COTS, except code level change (customization) may not be possible because software may be shared by other clients of the COTS vendor (e.g., DoD)
IT Strategic Alignment	<ul style="list-style-type: none"> Aligns with all the strategic priorities except cloud is VA administered 	<ul style="list-style-type: none"> Does <u>not</u> align with the following strategic priorities: buy first, reduce IT footprint 	<ul style="list-style-type: none"> Aligns with all IT priorities 	<ul style="list-style-type: none"> Aligns with all IT priorities
Cost	<ul style="list-style-type: none"> Total = \$16.2B Includes \$184M for VA cloud hosting 	<ul style="list-style-type: none"> Total = \$18.7B Includes \$525M for eHMP cost 	<ul style="list-style-type: none"> Total = \$11.9B Assumes \$830M software costs absorbed by vendor 	<ul style="list-style-type: none"> \$16.0B VA does not incur hosting costs
Relative Risk	<ul style="list-style-type: none"> Medium risk since vendors implement their solutions in this manner routinely 	<ul style="list-style-type: none"> Higher risk due to continued reliance on internally developed software 	<ul style="list-style-type: none"> High risk due to limited partner viability or appetite 	<ul style="list-style-type: none"> Medium risk since vendors have SaaS models in place

4.0 Cost Assessment

Grant Thornton applied a three step approach to develop high-level cost estimates for each option under consideration:

- Applied the analogous costing methodology as defined by the Government Accountability Office (GAO) Cost Estimating and Assessment Guide¹²
- Met with EHR vendors, applied assumptions for software implementation in VA and requested non-attributable, rough order of magnitude (ROM) estimates from each
- Applied industry research and benchmarks for large-scale EHR and management information system implementations to identify and price various cost centers typical of these implementations

We provide a 15-year cost estimate for this analysis. The first ten years will be implementation years, as discussed in the timeline section below. The last five years provide an estimate for what VA may expect for annual software licensing and maintenance fees.

4.1 Analogous Cost Methodology

Grant Thornton used the analogous methodology for the following reasons:

- There are few data points available to consider in assessing cost for an EHR implementation in an organization the size of VA. Two analogous implementations include the DoD acquisition of Cerner and the Kaiser Permanente implementation of Epic. These were determined to be analogous due to the similar care delivery model, supporting a dedicated patient population through all care delivery. In addition, the total patient population for the three are similar.
- Since VA is in the early stages of planning the EHR modernization, specific business and technical requirements are not available to provide the basis of an engineering cost build-up.
- The timeframe available for analysis to support the cost estimate is relatively short for such a large and complex organization.
- At this stage in the decision, a ROM cost estimate is sufficient for the four options as the final solution costs will be highly dependent on the vendor chosen and could change during the vendor selection process as the vendor addresses VA's specific needs.

In assessing the DoD and Kaiser implementations, Grant Thornton determined that the total number of enrolled patients provided a reasonable benchmark in performing an analogous estimate. This assessment yielded the approximately \$10.6B 10-year estimate used in the VA Digital Platform (VDP) paper provided to VA in December 2016.¹³

4.2 Vendor Discussions

To further refine the estimate for this paper, Grant Thornton engaged commercial EHR vendors to provide ROM estimates for the cost of software implementation and ongoing maintenance for VA. Grant Thornton provided the vendors a list of general assumptions and conditions for the EHR implementation scenario stipulating length of implementation, modules included and type of system solution offering. Upon review of the vendor-provided ROMs, it became apparent that these estimates generally agreed with the estimate delivered in the VDP report.

4.3 Industry Research and Benchmarking

The analogous methodology and vendor quotes produces top-line price estimates (e.g., total cost of implementation). In order to break the top-line cost into appropriate cost centers, we applied a further cost allocation breakdown developed through a survey of industry leaders who recently went through an EHR implementation. The cost breakdown we developed is in Figure 8.

Figure 8. Cost Allocation of Software Based on Industry Survey

Cost Component	Cost Allocation
Software	28%
Vendor Team & Support	41%
IT Infrastructure HW & SW (Hosting)	6%
Systems Integration	3%
Application Support	11%
End user devices	2%
User training at Go-Live	8%
Other Project Cost	1%
Total	100%

Next, due to the size and complexity of VA, we determined that a prime integrator would be required to support preparation for and implementation of the EHR. We identified an appropriate benchmark presented at the Health Information Management Systems Society (HIMSS) and applied it to our model. As shown in Figure 9, the effort of a prime integrator relates to the software cost with a ratio of 1.83:1.

Figure 9. Prime Integrator Cost (HIMSS)

HIMSS Component	Percent Cost
Software	30%
Labor	55%
Quotient	1.83

The final industry benchmark consists of a cost scalar derived from data provided by EHR in Practice⁵⁵. Grant Thornton studied available data for both traditional and SaaS EHR implementations and based upon that data, derived a scalar which we applied to the COTS cost to determine the cost for SaaS implementation and post-go-live costs. The data showed that implementation costs for SaaS are approximately .79 those of a traditional implementation. However, ongoing licensing fees for the SaaS software and services is approximately two times the cost of the software in a traditional implementation.

4.4 Option-Specific Costs

Option 1: COTS – *Option 1: COTS* utilized the above methodology to determine the overall cost and breakdown to cost centers. We first rationalized multiple vendor quotes by breaking the quotes down against various cost types and then developed an average cost among all vendors. Next, we applied the benchmark cost allocations to determine appropriate costs for each cost center, and then added the prime integrator cost. Finally, we applied our implementation timeline and allocated the implementation phase costs across the ten year implementation phase, followed by five years of annual software costs.

Option 2: COTS + eHMP – This option carried the costs from *Option 1: COTS* since they both include implementation of a COTS EHR solution in a VA operated cloud environment. In order to cost the eHMP component of *Option 2: COTS + eHMP*, Grant Thornton utilized an internal VA estimate for the cost to deliver Version 2.0 of the eHMP to all users. This estimate was provided in a briefing to the Presidential Transition Team earlier this fiscal year. The estimate provided a one-time first-year cost of \$96.6M to scale the product for use by all interested users and \$30.6M for each year thereafter for 14 years for a total 15-year cost of \$525M.¹⁶ Note that this cost assumes no additional development activity.

Option 3: Commercialized VistA – *Option 3: Commercialized VistA* began with a similar costing methodology to *Option 1: COTS* above. We assessed the vendor quotes to determine an appropriate price for the implementation and post-implementation phases of the project and allocated the costs according to our benchmarks listed above. We then assessed the impact of the commercialization agreement. *Option 3: Commercialized VistA* entails an agreement between VA and a commercial partner. The partner would be responsible for upgrading the technology to meet all VA-identified clinical priorities, and to bring the technology up to industry standard. Because of the significant investment necessary to accomplish this goal, we assumed a trade-off arrangement between VA and the vendor. The vendor would make the initial investment to modernize the system. Since the vendor would then be able to market the product commercially, they have an interest in the modernization effort. VA also would benefit greatly, because they transition to a familiar product and ease the concerns of many employees who are invested in the VistA application. We therefore determined that the vendor would apply 50 percent of the cost to modernize the product to their VA agreement, while self-funding the other portion. We therefore added the VA portion of this modernization cost to the implementation phase of the cost model to account for the added cost of modernization.

Grant Thornton studied the VistA 4 Roadmap to determine the total cost to modernize VistA and meet VA's clinical priorities. Our full assessment is provided in Appendix D. As per above, 50 percent of that total was applied to the cost estimate for VA.

Option 4: COTS SaaS – To determine the cost of *Option 4: COTS SaaS*, we applied the industry benchmarked scalar model noted in the previous section to *Option 1: COTS* above. Note that per the scalar, while the implementation phase for *Option 4: COTS SaaS* is less costly, ongoing software costs are much higher. Therefore, although the 15 year model we present shows a lower cost for COTS SaaS, this option will become more expensive over its lifetime.

4.5 Estimated Implementation Timeline

We applied a 10-year implementation time frame as the basis for the cost estimate. We selected ten years due to the size and complexity of VA, allowing adequate planning and preparation time, as well as time for appropriate alpha and beta testing prior to full roll out. Our assumed timeline includes appropriate planning for the following:

- 12-18 months for preparation, planning and Project Management Office (PMO) stand-up for the implementation
- Beta test at one facility for the next 12-18 months to deploy the future Health IT/EHR in VA:
 - Capture clinical and business requirements and standardize workflows across the facility
 - Translate clinical data and design requirements to technical specifications required for build
 - Map standard reporting capabilities to clinical and operational requirements and develop custom reports as appropriate
 - Develop a robust testing methodology to including testing data flow across vendor and VA applications and outside in the community
 - Conduct integrated clinical use case testing, including regression and community connections
 - Conduct training of clinical and operational end users
 - Determine appropriate support for activation and deployment activities
- Alpha test for 12-24 months that includes expansion to other facilities in the beta site Veteran Integrated Service Network (VISN), and additional facilities in other VISNs to control for VISN variability
 - Confirm lessons learned based from the beta site on clinical adoption and interoperability with community providers utilizing Agile methodologies
 - Conduct user review and acceptance analysis of standardized clinical and business processes developed and implemented at the beta test site
 - Determine key drivers for the time duration would be deployment of standardized clinical workflow, training and testing
- Begin national rollout of the implementation phase.

Figure 10. Estimated Adoption Timeline



In order to show the annual maintenance cost for the modern EHR system, we then added five years to our estimate, so the total estimate provided is for 15 years, the first 10 of which is implementation.

4.6 VA Costs

VA will also incur internal costs to support the migration to a new, modern EHR. These include data migration costs, change management, and funding a PMO to act on VA's behalf (the PMO can either be staffed with internal VA resources, or through a contract).

To determine the cost of data migration, we analyzed a previous effort where VA was able to complete comprehensive data migration for 66 sites.¹⁴ We assumed a similar level of effort per

facility would be required to migrate the full 130 instances of VistA. We aligned the timeline for data migration with the implementation timeline from above to determine the total number of sites VA must migrate each year and the total cost of migration.

To cost the change management portion, we leveraged our technical knowledge against a body of industry experience, as well as change management costs illustrated in the eHMP 2.0 rollout program. Change management costs are approximately 25 percent of a total projects aggregate cost, therefore a factor of 25 percent was applied to the overall project cost to calculate the change management cost.

PMO costs were determined by leveraging Grant Thornton's industry experience as well as analysis of pertinent Office of Management and Budget (OMB) Form 300s and select research into other large scale ERP, EHR and information technology implementation projects to determine an appropriate benchmark. Our analysis indicates PMO costs are generally between 15-20 percent of the overall project costs. We assumed the high-end due to the inherent complexity of the scale of VA and a factor of 20 percent was applied to calculate to the PMO cost.

4.7 Complexity Factor

Finally, due to the early stage of decision-making at VA, many factors that impact overall cost are not well understood. These factors include:

- Specific business and clinical requirements, which may identify additional software or integration needs, which may increase overall cost.
- A readiness assessment, which we recommend below, may identify additional internal costs such as infrastructure improvements or increased change management costs.
- Additional development needs in eHMP or VistA modernization.

We therefore added a 20 percent complexity factor for *Option 2: COTS + eHMP* and *Option 3: Commercialized VistA* and a 15% complexity factor for *Option 1: COTS* and *Option 4: COTS SaaS* to account for unknown costs that are likely to arise over the planning period.

Figure 11 provides the detailed breakdown of costs, per our analysis.¹⁵ Appendix D provides full detail of the steps associated with developing each cost center, and the calculations performed.

Figure 11. 15-year Costs Associated with Four Options

Cost Center	Option #1: COTS	Option #2: COTS + JLV/eHMP	Option #3: Commercialized VistA	Option #4: COTS SaaS
Vendor Costs				
Software	\$1,179,240,741	\$1,179,240,741	\$194,372,093	\$931,600,185
Vendor Team & Support	\$1,726,745,370	\$1,726,745,370	\$284,616,279	\$1,364,128,843
IT Infrastructure HW & SW	\$252,694,444	\$252,694,444	\$41,651,163	\$199,628,611
Systems Integration	\$126,347,222	\$126,347,222	\$20,825,581	\$99,814,306
Application Support	\$463,273,148	\$463,273,148	\$76,360,465	\$365,985,787
End user devices	\$84,231,481	\$84,231,481	\$13,883,721	\$66,542,870
User training at Go-Live	\$336,925,926	\$336,925,926	\$55,534,884	\$266,171,481

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Other Project Cost	\$42,115,741	\$42,115,741	\$6,941,860	\$33,271,435
eHMP (<i>Option 2: COTS + eHMP only</i>)	\$0	\$525,000,000	\$0	\$0
VistA Modernization (<i>Option 3: Commercialized VistA only</i>)	\$0	\$0	\$813,340,000	\$0
Software Implementation Cost	\$4,211,574,074	\$4,736,574,074	\$1,507,526,047	\$3,327,143,519
Post-Go-Live Software Cost	\$1,332,060,606	\$1,332,060,606	\$1,170,000,000	\$2,664,121,212
Vendor Total	\$5,543,634,680	\$6,068,634,680	\$2,677,526,047	\$5,991,264,731
Services Cost				
Change Management Cost	\$1,052,893,519	\$1,527,858,025	\$1,109,047,840	\$1,109,047,840
Data Migration Cost	\$505,382,301	\$505,382,301	\$505,382,301	\$505,382,301
Prime Integrator	\$2,161,941,358	\$2,161,941,358	\$1,707,933,673	\$1,707,933,673
VA PMO Cost	\$2,315,962,964	\$2,565,954,091	\$2,328,407,136	\$2,328,407,136
Cloud Hosting	\$184,673,700	\$184,673,700	\$0	\$0
Services Subtotal	\$6,220,853,842	\$6,945,809,474	\$5,650,770,949	\$5,650,770,949
Contingency	\$2,352,897,704	\$2,602,888,831	\$1,665,659,399	\$2,328,407,136
Sub-Total	\$14,117,386,226	\$15,617,332,985	\$9,993,956,395	\$13,970,442,816
Complexity Factor	\$2,117,607,934	\$3,123,466,597	\$1,998,791,279	\$2,095,566,422
Grand Total	\$16,234,994,160	\$18,740,799,583	\$11,992,747,674	\$16,066,009,238

5.0 Summary of Findings

Grant Thornton utilized our technology adoption approach to assess various options for VA's modernized EHR. The assessment identified the clinical and IT priorities, benefits, risks and costs of each of four options for EHR modernization presented by VA. Our assessment found significant overlap in capability with respect to clinical priorities, and for the most part, alignment with VA's IT priorities. Options differentiate to a greater extent when assessed against the real and potential benefits and risks. These provide a framework against which VA leaders may weigh the options against one another, and informed the decision-criteria discussed in the Executive Summary. While Grant Thornton was not asked to provide a specific recommended option, our analysis provides objective information upon which a decision may be based.

Figure 12 provides a summary of each option's alignment with VA's clinical and technology priorities, as well as the relative benefits and risks associated.

Figure 12. Alignment with Clinical Priorities & IT Strategic Direction

Evaluation Factors	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercializ ed VistA	Option 4: COTS SaaS
Clinical priorities				
IT strategic direction				

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Benefits	HIGH	HIGH	HIGH*	HIGH*
Risk	MEDIUM	HIGH	HIGH	MEDIUM



*Rating assumes VA inserts appropriate language into the contract to guarantee access to and control of data as well as ability to connect third-party software at will.

In addition, Figure 13 provides the high-level cost breakdown of each option.

Figure 13. Costs of Four Options

Cost Component	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercialized Vista	Option 4: COTS SaaS
Vendor Costs				
Software Implementation Cost	\$4,211,574,074	\$4,736,574,074	\$1,507,526,047	\$3,327,143,519
Maintenance & Support Cost	\$1,332,060,606	\$1,332,060,606	\$1,170,000,000	\$2,664,121,212
Vendor Total	\$5,543,634,680	\$6,068,634,680	\$2,677,526,047	\$5,991,264,731
Services Cost				
Change Management Cost	\$1,052,893,519	\$1,527,858,025	\$1,109,047,840	\$1,109,047,840
Data Migration Cost	\$505,382,301	\$505,382,301	\$505,382,301	\$505,382,301
Prime Integrator	\$2,161,941,358	\$2,161,941,358	\$1,707,933,673	\$1,707,933,673
VA PMO Cost	\$2,315,962,964	\$2,565,954,091	\$2,328,407,136	\$2,328,407,136
Cloud Hosting	\$184,673,700	\$184,673,700	-	-
Services Subtotal	\$6,220,853,842	\$6,945,809,474	\$5,650,770,949	\$5,650,770,949
Contingency	\$2,352,897,704	\$2,602,888,831	\$1,665,659,399	\$2,328,407,136
Subtotal	\$14,117,386,226	\$15,617,332,985	\$9,993,956,395	\$13,970,442,816
Complexity Factor	\$2,117,607,934	\$3,123,466,597	\$1,998,791,279	\$2,095,566,422
Grand Total	\$16,234,994,160	\$18,740,799,583	\$11,992,747,674	\$16,066,009,238

6.0 Recommendations

EHR modernization is a journey. While Grant Thornton makes no recommendation on which specific option VA should pursue, no matter the choice, the following is recommended in order to inform downstream decisions such as vendor selection (should a COTS solution be involved in the modern EHR), continued development of eHMP and other factors:

- Technical readiness assessment:** During interviews, a number of VA personnel expressed confidence that VA had the necessary network infrastructure, bandwidth and other technical capabilities to move to the cloud or adopt enterprise-wide SaaS solutions. However, there were others including VA leadership, both nationally and in the field, who expressed reservations regarding the organization having the network capacity and bandwidth to support the EHR in the cloud. We recommend that VA conduct a study to validate these statements. Readiness assessment must also include facilities, data centers and security components.

- Technical evaluation of eHMP:* During the interviews, some of the VA personnel shared their optimism that eHMP could help bridge the gap that currently exists around transparency and interoperability both across the different instances of VistA and also between VHA, DoD and the community providers. However, independent assessments of the technology and Grant Thornton's analysis of eHMP program documentation raise concerns as to the long-term viability of the product. A complete, independent assessment of eHMP from a technological standpoint is recommended to determine if it is scalable in its current form, and if not, the necessary additional cost to restructure the product so that it is scalable. In addition, it is also recommended that the assessment include eHMP's ability to integrate with COTS EHR solutions the way it promises to integrate with VistA.
- Acquisition approach:* VA has specific and critical needs that impact any solution VA chooses. It is critical that VA's needs are properly documented in the clinical and technical requirements of any procurement. This needs to be supported by robust business and technical architectures (capability maps, process models), systems quality factors, service level agreements and enterprise design. In addition, contractual requirements must also address any needs VA has, such as ownership of and access to data. These contractual requirements should be assessed and included as requirements in the solicitation. Cost models are validated and Independent Government Cost Estimates (IGCE) are established. This must include garnering best practices and lessons learned from the DoD Genesis acquisition. It may also include proof of concepts, controlled pilots and phased rollouts.
- Systems engineering and program management plan:* This should include strategy for requirements management, interface analysis, usability and human factors, architecture analysis and documentation, end-to-end testing, continuous risk management, development of performance metrics and an integrated master plan/schedule (IMP/IMS).
- System (application) and hardware inventory:* OI&T should conduct a detailed assessment and inventory of each clinical location to ensure all software is catalogued to understand interface requirements. Additionally a detailed desktop, printer and ancillary hardware inventory needs to be conducted as all of these devices will need to be evaluated against any of the strategic options for future usability.

The studies and actions we recommend above will have an impact on the total cost to implement a solution. The readiness assessment may uncover additional necessary investment to improve the performance and bandwidth of the network infrastructure. The systems engineering and program management plan may also increase cost as additional requirements are identified the PMO or vendor must address. The results of these studies may also impact our findings from a benefits and risks standpoint, as significant change in network or organizational improvements to support the transition may introduce risks not assessed. However, these actions are critical to support the successful implementation of any solution.

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8.0 Appendix A: Macro Assumptions

In assessing the options, Grant Thornton made the following assumptions:

- Grant Thornton used the Health Information Management Systems Society (HIMSS) definition of an EHR, which states: “The Electronic Health Record (EHR) is a longitudinal electronic record of patient health information generated by one or more encounters in any care delivery setting. Included in this information are patient demographics, progress notes, problems, medications, vital signs, past medical history, immunizations, laboratory data and radiology reports. The EHR automates and streamlines the clinician's workflow. The EHR has the ability to generate a complete record of a clinical patient encounter - as well as supporting other care-related activities directly or indirectly via interface - including evidence-based decision support, quality management, and outcomes reporting.”
- VA will implement the EHR as a component of the overall VA Digital Platform (VDP), as described in the strategy document published in 2016 “VA Digital Platform Strategy for Next Generation of Care at the VHA.” The VDP establishes a platform on which the EHR operates with other management information systems, such as human resources, financial management and customer relationship management, as well as external EHRs used in the healthcare community, to include DoD. In addition, through the VDP, VA will be able to adopt other tools available in the market to augment core EHR capabilities.
- This assessment focused on the EHR components of VistA only (core clinical, clinical ancillary and revenue cycle). This paper does not address the modernization of other components of VistA such as police and security, financial management, supply chain or others. Appendix E contains a list of current VistA modules that constitute the EHR.
- In assessing implementation costs, the continued carrying costs for maintaining the VistA EHR were deemed to be equal no matter the option selected, therefore they were not considered during this analysis.
- VA currently houses backup copies of electronic health records locally at VA Medical Centers (VAMCs) in the event of network disruptions, in addition to hardware for the provision of the new EHR product. There will be minimal, if any, net new hardware costs incurred as part of the transition to a modern EHR.
- This assessment is based upon strategic needs of the organization, from both a clinical and technological perspective. Detailed business and clinical requirements are not yet defined. The cost assessment therefore uses an analogous methodology and provides a Rough Order of Magnitude (ROM) cost estimate. Additionally, based upon our analysis, the DoD and Kaiser Permanente EHR adoptions are analogous projects.
- Industry benchmarks related to the adoption of new EHRs are relevant to this assessment. Benchmarks include the relative percentage of costs attributed to software, hardware, change management and other factors, as well as the proportional cost of SaaS models versus traditional deployment.
- Three of the four options include the adoption of a COTS EHR solution. Although all clinical and IT priorities can be satisfied by COTS software, a single COTS vendor may not address all equally. Therefore, VA may choose to adopt a vendor for a majority of the EHR components and then add, through the VDP, best-in-class capabilities available through other vendors in order to fully meet its clinical and IT priorities.

9.0 Appendix B: Stakeholder Interview Findings

9.1 Clinical Stakeholder Findings

In order to understand the experience of clinicians using CPRS and VistA for both clinical and research work, several qualitative interviews were conducted with VHA clinicians (both physicians and nurses), including some who had expertise and leadership roles in health informatics and health information technology implementation. The VHA interviews were led by the MITRE collaboration with Grant Thornton. While the majority of clinicians expressed that they are able to collaborate well with other clinicians in order to provide excellent care to Veterans, numerous themes were compiled after these discussions regarding ways in which an EHR solution improve Veteran and clinician experience.

Based on multiple EHR vendor interviews conducted by Grant Thornton, it was felt that all four strategic options could support the needs and requirements of VHA clinicians and leadership. This section highlights essential themes that clinicians expressed with regard to selection and implementation of a modern EHR.

9.1.1 Leadership

Key Messages: Clinicians articulated a feeling that there is a lack of central governance and that the problems are greater than just EHR choice. Many felt that:

- The *change management* aspect of an EHR transition is significant and the VA needs to be committed to understanding workflows in order to improve the experience for Veterans and clinicians
- Some providers feel significant *trust between clinicians and IT has been lost over time* with respect to partnership in VistA and CPRS development. Part of this is related to the fact that EHR improvements are hampered by budget and approval processes, and additionally, disconnect exists between VA facilities and IT with respect to business planning.
- Regardless of past issues, a number of the clinicians expressed a need for *shared partnership with IT* to deliver quality Veteran-centric care
- Clinicians also feel that the *contracting process is too long* and bureaucratic and needs attention because by the time tools are eventually developed, they are obsolete.

9.1.2 Clinical Workflow

Key Messages: Providers desire modern EHR capabilities that are intuitive, efficient and allow the clinician to spend more time delivering direct care to the patient. The following are key themes shared during the interviews:

- There is *lack of single-sign on*, which makes it frustrating to go back and forth between different applications
- There is no ability for physicians to easily see their schedules and those of trainees they are supervising. This makes it *difficult to plan their day* because for example, they cannot see if a patient has canceled and then adjust.
- Multiple clinicians mentioned that they need an *integrated way for patient information* to be presented on an EHR screen that *interfaces with clinical decision support tools* and makes *documentation streamlined* and accurate
- Despite the recognition that alerts and reminders are important parts of patient safety, there are often *too many screens and clicks that clinicians must encounter*. One nurse noted that the computer admission

protocol takes up to two hours for an intensive care unit patient, and 45 minutes for a floor patient, significant time sinks for a nurse who has multiple patients and time-sensitive responsibilities

In addition to the above, there were more focused comments shared such as:

- Because of the decentralized nature of IT, facilities have taken to implement local solutions (both designed internally by local VA IT personnel and COTS products). One provider provided an example that while the COTS solution for their emergency department (ED) worked very well and allowed them to easily see recent Veteran ED visits and reasons, this system did not interface with CPRS. As such, if a patient was admitted to the hospital, an admitting physician could not easily see the ED record (information is saved in cumbersome PDFs).
- There Mixed feedback was shared regarding CPRS usability, with some providers expressing that they felt CPRS was very easy to use and intuitive (multiple providers noted that it worked very well for pharmacy) while others felt that COTS solutions were much more user-friendly and capable.

9.1.3 Team-Based Care/PACT

Key Messages: As discussed previously, VA has a strong commitment to providing effective team-based care for Veterans through the PACT initiative. Each PACT “teamlet” is comprised of a Veteran, a primary care provider (physician, physician assistant, or nurse practitioner), a registered nurse who functions as a care manager for the team, a licensed practical nurse or medical assistant, and a clerical assistant.^{19–21} VA research has already shown that improved relationships with Veterans and speed of care received were noted positives of PACT.^{19,20} Despite all of this, CPRS does not support PACT well. VA clinicians have created work-arounds to address these deficiencies, but one group of VA providers detailed several EHR features that would be beneficial in order to support team-based care (Figure B-1).

- Providers are not able to directly communicate through the EHR outside of patient records. A workaround that many use today is adding additional signers to patient notes, which creates an alert to another provider to sign that note, but does not allow for a direct specific message to that provider which is in the EHR but not in a patient note.
- There is no good way to manage panels of patients or cohorts based on clinical condition because of limitations in VistA’s architecture.

Figure B-1. Clinical Team Needs for Team-Based Panel Management²²

Clinical Needs	Relevant Technical Capability
Allow user to group patients by a specific clinical condition.	The system should have multidimensional report capability, allowing the user to specify time period, patient group, and selected clinical data at a patient level.
Provide summary Data on key clinical variables (e.g. lab tests, prescriptions) that are used as markers of quality of care for a group of patients.	Reports need to be able to summarize numerator and denominator information for the patient group of interest.
Need resources to facilitate patient outreach (e.g., personalized patient letters or handouts)	The database system should be able to link pertinent information at a patient level, and provide an “on-demand” synopsis per individual patient.
Ability to easily track care across time.	The database system should be able to access clinical data in a longitudinal fashion at the patient level.

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Clinical Needs	Relevant Technical Capability
Facilitate collaboration among interdisciplinary providers.	The system must have a user interface that supports the needs of interdisciplinary clinical team members.
Provide timely data.	Data extraction from the electronic health record should be timely (preferably on a daily basis).
Need to be able to enter clinic-specific orders and requests.	Interface must have dual-way information flow between panel management tool and electronic medical record.

9.1.4 Analytics and Research

Key Messages: The desire for improved analytics and easier methods of accessing data for both clinical improvements and research were recurring themes expressed by clinicians and informaticists.

- Though many providers emphasized that the volume of data available for Veterans is impressive, *extracting this data usefully can be difficult and slow.*
- Clinicians described *difficulty with obtaining access to databases* and data warehouses and even once they do, they are *not user friendly*. Databases that users create often do not work outside a specific facility.
- Physicians note that they are expected to monitor their productivity but cannot view real-time metrics. Relatedly, users explained that it takes significant amounts of time to run reports that are needed quickly, which greatly hinders prospective research.

9.1.5 Mental Health

Key Messages: Mental health is an area of distinct importance to VA; there is a long history of programs and interventions to support Veterans, who at higher risk for mental health conditions in general, and others specifically such as post-traumatic stress disorder (PTSD) and suicide. Talking with providers allowed better understanding of some of the technology related challenges experienced by practitioners in this division.

- Veterans receive care from many providers and *coordination of care is difficult* to manage across multiple sites. This is especially critical at times of transition such as when Veterans are leaving active duty and are particularly vulnerable. Clinicians felt that there need to be *better methods for stratifying risk levels of patients* and tracking their care within an EHR.
- Providers would also like the *ability to easily code more detailed information* (e.g. the particular type of therapy provided or assessment completed).
- Documentation is highly narrative, and providers suggested that more *standardized ways of documenting health information* would be helpful.
- From the Veteran perspective, providers recommended *incorporating Veteran input and goals*, interventions and a care plan and allowing these to be integrated with the EHR. Currently, there are numerous self-assessment tools for Veterans but they do not connect with the EHR.

9.1.6 Interoperability

Key Messages: Many providers expressed numerous difficulties with sharing patient information outside the VA.

- Providers note that the majority of the time, if a patient is seen in the community, when their records are obtained they are largely in paper format and scanned into the EHR. They are linked as images/PDFs and *not integrated with the Veteran's clinical information* in CPRS, so they cannot be linked with clinical decision support tools or reminders.

- Providers note that if Walgreens and CVS can add immunization data into CPRS, it would be beneficial if other community providers could as well.
- Clinicians want *tools that connect with each other* better, such as kiosks or tablets into which Veterans can enter information and communicate with the EHR.

9.2 Validation of Findings with VHA Executive Leaders

Grant Thornton attended a VHA leadership dinner that included discussions surrounding the EHR Strategic Assessment. Along with seeking insights and feedback, a survey was administered to VHA leadership to compile stakeholder feedback and clinical priorities that were both discovered and considered throughout the stakeholder interviews and assessment period.

In the first part of the survey, participants were asked to identify which stakeholder feedback criteria resonated with them. Stakeholder feedback was narrowed down to the following categories; culture, communications, mental health, analytics and measurement, usability/tailorability, community care interviews, and package level discussion. The captured results are in Figure B-2 below.

Figure B-2. VHA Leadership Comments

	Description	Resonates (Number of times box was checked)	Percentage of results
Culture	There is a cultural legacy of partnership between clinicians and developers. Clinicians appreciate the ability to customize locally, working with developers to implement modifications to their instances of VistA. Several clinicians expressed satisfaction with this capability, and fear losing it with an enterprise COTS system.	18	55%
	Many clinicians will accept a change and are ready for a decision to be made. They are, however, reticent about the organization's ability to make a decision and successfully implement it.	20	61%
	Some concern of an exodus from VA for retirement eligible clinicians as they do not want to go through a difficult transition at this stage in their career.	8	24%
Communications	<i>Team-Based Care:</i> Communication between services is difficult now, so they have work arounds where they enter notes into the record and ask for a co-signature so another provider sees it and can respond. Need secure communications tools so the care team can interact without using the patient's record to do so.	16	48%
	<i>With community providers:</i> Care coordination and communication goes beyond just the care team. Communication with the patient, community providers, and others is important. Need a system that is easier to use for all parties. In the interview with Karen Hudgins, she noted that they are now up with encrypted email with community providers.	21	64%
	<i>With the Veteran:</i> Current capabilities with MyHealtheVet are clunky and hard to use. The Epic solution was brought up as a very good tool, used throughout the industry. VA should look to that type of solution to communicate with Veterans. Focus on mobile, getting ready for the younger generations.	14	42%

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	<i>Information Sharing: We overprotect the data and have too many security requirements that get in the way. Providers feel that it hinders their ability to perform their work. Other organizations are able to share data much more freely, why can't VA?</i>	18	55%
Mental Health	Providers want better tools to support care coordination within and across medical centers – High risk patients often receive care at multiple locations	22	67%
	Ability to interact with Veterans outside the care setting and receive information. This includes the use of mobile technologies to support self-help and transfer of information to the provider.	19	58%
	Existing system is limited in the ability to provide care planning at the level VA needs. Providers however do not believe commercial products have the answer – most systems do not address mental health as completely as VA.	9	27%
Analytics and Measurement	Informaticists generally agreed that they appreciated the ability to extract and analyze data for clinical and research purposes with VistA and would want this to continue.	17	52%
	Clinicians expressed difficulty conducting analysis at the patient or cohort level with FileMan. They need to be able to dynamically analyze data at the patient, cohort, population, and eventual genomic level.	19	58%
	From a measures standpoint, it is important to be able to measure performance. However, simply looking at care metrics isn't sufficient to truly measure performance. Canned reports are not able to provide the information needed. Clinicians want to make sure they can perform analysis beyond what is available from a canned report.	17	52%
	While enterprise analytics is seen as a positive with VistA, at the provider level, they don't have the analytics capability they need (described by one clinician with VistA development experience that this is a challenge with MUMPS). Describe downloading data from FileMan, which takes a long time, then having to export to excel and work with it a lot to get what they need from the data.	14	42%
	Looking for dashboards to support patient care, analytics and decision support	3	9%
Usability and Tailorability	Clinicians liked the ability to develop tailored solutions in VistA and were concerned that commercial products will not allow the level of customization they are used to.	10	30%
	Current system is not as user friendly as it could be. There are too many clicks necessary to get where you need to go, and too many screens to navigate. Solution should better align with how physicians work to smooth the process.	21	64%
	Information coming from outside providers need to be a part of the record rather than having to go to different places. Provided example where Walgreens and CVS can now populate the record. Why not other providers?	23	70%
	General discussion of data availability is that current system has data in too many places, requiring the provider to jump between screens/systems to view information.	12	36%
	Reminders – Not aligned to specialty or need. All reminders hit the PCP, which puts them into a mindless clicking mentality. Reminders should go to the clinician that needs it, not just to the PCP.	18	55%

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Innovations	Hospitals/VISNs are bringing in their own capabilities to bridge the gaps in technology (e.g., Cerner Lab). Lack of enterprise focus on new capabilities.	11	33%
	Feeling that OI&T is unable to support innovations, so the field has to do it. Example was given related to VistA multiple instances – Region 1 has built new capabilities in VistA (screens, workflows, etc.) and other regions can't take it in because OI&T can't always migrate these capabilities across the country.	20	61%
	Need to have a multi-disciplinary approach to IT innovation to understand how professionals work/work together.	17	52%
	One common theme on the future is having the medical record self-populate the information a physician needs to know coming into the visit, have the record “tell” the doctor the important/salient points and lead them through the encounter using decision support tools.	19	58%
Community Care interviews	There are currently five different legislative authorities for community care. This will make any claims management system hard to implement without customization. They are planning to merge the authorities into one authority, but not there yet. That would help with business rules around when to/not to pay.	14	42%
	Care coordination is also important with non-VA providers. Stakeholders talked about secure communications/encrypted email. They recently deployed that capability, but would like to do more to improve collaboration and coordination between providers.	17	52%
	Aligning what VA pays to community providers with third-party claims is important. Must be able to identify first and third-party claims received that can be charged to Veterans' insurance companies.	14	42%
Package-Level Discussion	Pharmacy – 80% of prescriptions filled by Consolidated Mail Outpatient Pharmacy (CMOP). The solution needs to account for this. It has to be an enterprise system that allows for CMOP and local staff to see everything. Feeling is that commercial products can support this, but there should still be an eye towards VA-specific needs.	17	52%
	Lab professionals articulated significant deficiencies with the lab package. The lab package has not been updated in a long time. VistA has difficulty importing lab data and updates cannot easily be made because they will break in other instances of VistA. They feel they need a relational database to handle their lab data. There is no lab information system and they are using middleware patches and products to try to manage this. They view VistA as archaic and a security risk with respect to lab. Other deficiencies in the current system include: microbiology, barcode reading, and order management.	21	64%

In the second part of the survey, participants were asked to rank the following clinical priorities on a scale of 1 to 5. Clinical priorities were grouped as care approaches unique to VA, workflow, team based care/PACT, analytics/research, mental health, and interoperability. Figure B-3 looks at the number of times a clinical priority was considered for ranking.

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Figure B-3. VHA Leadership Survey

Category	Number of Times Ranked	Percentage of Rankings
Care Approaches Unique to VA		
Configuration required to address Federal requirements while serving a unique population base e.g., pharmacy, tele-health, mental health	1	20%
Workflow		
Single location for Veteran information – whether VA or community generated records.	16	52%
Improved tele-health, mobile and web-based tools/technologies for managing Veteran care	8	26%
Scheduling ease for Veterans and providers	11	34%
Team-based care / PACT		
Improved care coordination	17	45%
Improved communication tools	7	30%
Management of Veteran cohorts – supporting Veteran groups with similar health concerns	2	40%
Analytics / Research		
Clinical decision and cognitive analytics support - care for an individual Veteran	12	35%
Population health - leveraging large data sets to improve care for groups	11	24%
Performance improvement - tracking outcomes between VA facilities/regions	4	24%
Ability to easily access data for clinical and research purposes	6	24%
Mental health		
Seamless integration of mental health into EHR	12	28%
Interoperability		
Seamless bi-directional exchange of data with DoD, community providers, etc.	21	40%

9.3 OI&T Stakeholder Findings

In order to understand the experience of OI&T staff, both leadership and technical, qualitative interviews were conducted throughout the strategic assessment. These stakeholder interviews were led by Grant Thornton in collaboration with MITRE Corporation. The purpose of these interviews were to better understand how the four potential strategic options align with the following OI&T's

stated priorities: single-view of Veteran and data management, strategic sourcing, buy-first approach, cloud-based, reduced IT footprint, interoperable with VistA, COTS, DoD, community care providers, etc.

9.3.1 Clinician Input into EHR Design

Key Messages: Providers had concerns about the ability of a commercial product to take into consideration VHA clinicians' wants and needs in the implementation process. Stakeholders explained that during the original development of VistA and CPRS, clinicians and end users priorities and practices were strongly taken into consideration. *It is very important to VA clinicians to have say in their clinical practices, workflows, tools, and processes that support them.*

9.3.2 Absence of Data Standardization

Key Messages: The current VistA environment is lacking data standardization across VHA sites.

- Stakeholders suggested having every VAMC running the same code base *without pulling away facilities' abilities* to do their own specific processes.
- At the data level, *standardization is important* for sharing data between VAMCs and elsewhere (DoD/community). A key concern surrounding data standardization and the VA, is that the primary problem with instituting standards is that control is currently siloed into non-interconnected regional data stores

9.3.3 Questioning Contractor Value

Key Messages: Third-party contractors are not providing true value to the VA. Stakeholders said that *contracts are limiting in nature*, which they feel prevents meaningful work from occurring. This restriction along with the contractor's unfamiliarity with VistA, and requirements not being effectively communicated, leads to inefficiency and poor results.

9.3.4 Development of Business Requirements

Key Messages: Developers expressed throughout the interviews that business processes and requirements created are not useful to developers but rather primarily designed for congressional needs and OI&T and VHA leaderships' priorities. Stakeholders felt OI&T and VHA leadership should develop of business requirements that allow for successful projects and mitigate change in project scope and direction.

9.3.5 Difficult System Navigation

Key Messages: Navigating between modules and search functions within the current system architecture is *extremely difficult* due to multiple log-ins and fire walls. Stakeholders expressed interest in incorporating single sign-on, and application interconnectivity into the new solution that VA decides to move forward with.

9.3.6 Network Capacity to Support New Solution

Key Messages: Several stakeholders expressed concern about limitations in VA's network inhibit future development

- lack of network segmentation by asset class was mentioned by one stakeholder

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- A concern expressed during one interview was that VA's network does not have the available bandwidth required by commercial systems.
- Another stakeholder expressed concern in regards to network capacity stating that VA's network is not reliable or standardized, which can result in concurrency problems. It is very important that the VA system be designed to operate natively in an asynchronous environment.

9.4 Stakeholders Interviewed

Figure B-4.VHA Stakeholders

Name	Title
Amy Colon	Program Manager, Pharmacy Benefits Management Services
Anthony P. Morreale, PharmD	Assistant Chief Consultant for Clinical Pharmacy Services & Healthcare
Blake J. Lesselroth MD, MBI	Hospitalist and Informaticist
Brook Watts, MD	Senior Advisor for Health informatics
Carrie Patton	Clinical Implementation Coordinator
Cathy Davis, RN	Chief Nurse, Primary Care
Charles Demosthenes, MD	Physician Lead, Analytics and Connected Care
Christopher Lacey, PharmD	Associate Chief, Clinical Pharmacy
Daniel Papell, PharmD	Pharmacist Clinical Application Coordinator
Bill Weppner, MD, MPH	Primary Care Chief
Karen Hudgins	Director, Community Care Transformation
Kathleen Lysell, PsyD	National Mental Health Director For Informatics
Michael Icardi, MD	National Director of Pathology and Laboratory Medicine Services
Monica Lypson MD, MHPE	Director, Medical and Dental Education
Steve Fihn, MD, MPH	Director, Clinical System Development and Evaluation
Steve Lieberman, MD	Assistant Deputy Under Secretary for Health for Access to Care
Tim Heimann, PharmD	Chief, Pharmacy Service
Eric Burgess	Associate Chief Financial Officer for Managerial Cost Accounting, VHA Office of Finance
Jianji Yang, PhD	Lead Data Architect and Informaticist
Joan Clifford, DNP	Deputy Assistant for Deputy Under Secretary for Health for Access to Care
Judy McConnachie, MPH	Administrative Director, Clinical Business Intelligence
Laura J. Kroupa, MD	Chief Medical Informatics Officer
Linda McConnell, MSN	Chief Nursing Officer
Lynn Sanders, PharmD	Associate Chief Consultant, Clinical Informatics and Pharmacy Re-Engineering, Pharmacy Benefits Management
Michael A. Valentino, MHSA, RPh	Chief Consultant Pharmacy, Pharmacy Benefits Management Services
Michael L. Davis	Executive Director, Access & Clinic Administration Program, VHA
Neil C. Evans, MD	Chief Officer, Connected Care
Rachel B. Ramoni, DMD, ScD	Chief Research & Development Officer
Rob Silverman, PharmD	Assistant Chief Consultant, PBM Clinical Informatics
Richard Barrow, BSN, MSHI	Nursing Informaticist
Rob Silverman, PharmD	Assistant Chief Consultant, PBM Clinical Informatics
Sheila Ochylski, DNP	Chief Nursing Informatics Officer
Shilpa Patel-Teague, MHA	Director for Clinical Programs, VHA
Thomas Emmendorfer, Pharm.D	Deputy Chief Consultant, Pharmacy Benefits Management Services

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Uche S. Uchendu, MD	Chief Officer, Office of Health Equity
Virginia S. Torrise, Pharm.D	Deputy Chief Consultant, Professional Practice and Clinical Informatics, Pharmacy Benefits Management
William Gunnar, MD, JD, FACHE	National Director of Surgery
William P. Patterson, MD, MSS	Network Director

Figure B-5. OI&T Stakeholders

Name	Title
Annette Gibbs-Skervin	Executive Director, Strategic Sourcing Transformation Management
Bill James	Deputy Assistant Secretary, Enterprise Program Management Office
Cynthia Bias	ASD VistA Evolution eHMP Product Manager
Daniel Carroll	IT Program Manager
Eugene Guglielmo	Senior Advisor, Health Data Management
Jack Galvin	Executive Director , End User Operations
Jason Hawsey	IT Specialist
Joel Russell	IT Specialist
John Short	Program Executive, VistA Evolution; Acting Deputy Director, DoD/VA Interagency Program Office
Keith Michael	VistA UX Product Manager
Kevin Meldrum	IT Specialist
Melanie Buechler	IT Specialist
Patrick Redington	IT Specialist
Roger Sigley	Program Manager
Roopangi Kadakia	Chief Cloud Strategist
Vanessa Davis	Health Product Support Director
Vitalia Devlin	Division Director, Health Product Support Clinical Product Support

10.0 Appendix C: Identification of Applicable Market Trends

Grant Thornton reviewed industry publications and research regarding the future direction of health IT and healthcare delivery. Publications and research included information from Gartner, Forrester and peer-reviewed medical journals. The following are trends identified as applicable to VA's EHR decision.

10.1 Precision Medicine

VA has long been a leader in research that incorporates new technologies in order to improve the care of Veterans. Precision medicine is defined as “treatments targeted to the needs of individual patients on the basis of genetic, biomarker, phenotypic, or psychosocial characteristics that distinguish a given patient from other patients with similar clinical presentations. Inherent in this definition is the goal of improving clinical outcomes for individual patients and minimizing unnecessary side effects for those less likely to have a response to a particular treatment.”²³ In 2009, VA began pilot work to plan for the Million Veterans Project, with the goal of improving understanding of health, disease, and the complex interplay between genetics, environment, and behavior. As of August 2016, more than 500,000 veterans have been enrolled.^{24–26} Precision medicine aims to increase quality/speed of clinically relevant analysis and interpretation of complex biological information both for VA patients and elsewhere.²⁷ Recent VA studies proposed and in progress use precision medicine to target advances in diagnosis and treatment of conditions as diverse as lung cancer, kidney disease, substance abuse disorders, PTSD, cardiovascular disease, and vision loss.^{25,27}

In order to support precision medicine as it is used more widely in the clinical rather than solely research setting, there are several technical requirements for an EHR. In addition to development of data standards for genetic test results, there need to be common data formats using standardized medical terminologies.²⁸ EHRs should be able to populate genetic and pharmacogenomics data and integrate with clinical decision support tools. Assistance with medication dosing, facilitation of orders, improved alerts and reminders, display of relevant information, and workflow support are some of the efficiencies that can be realized.^{28,29} EHRs' interfacing with research data warehouses will also allow cross-population queries and improvements in individual patients' care through analysis of larger patient data sets.³⁰

10.2 Telehealth Services

As healthcare delivery transitions more and more to settings other than hospitals, the healthcare industry continues to innovate. Telehealth and Internet of Things and wearable technologies have the potential to transform care. Telehealth can be defined as “a broad variety of technologies and tactics to deliver virtual medical, health, and education services. Telehealth is not a specific service, but a collection of means to enhance care and education delivery.”³¹ Telehealth functionalities have been integrated in EHR systems and are already showing promising results in terms of patient satisfaction, cost reduction, and efficiency for providers.^{32–34} Medicare has provided rural health guidelines highlighting services that can be provided via telehealth and are reimbursable.³⁵

VA continues to develop ways of providing care to Veterans while improving quality, efficiency, and convenience. Approximately 25 percent of all Veterans live in predominantly rural areas, and they

are disproportionately older, which creates opportunities for new types of care.^{36,37} Approximately 30 percent of Veterans have no access to the internet, and this group is also disproportionately older.³⁸

VA Telehealth Services uses both synchronous (e.g. real-time videoconferencing between patients and a care team, remote medical device monitoring) and asynchronous (e.g. acquisition of and transmission of medical data for later review by providers, patient video education modules) communication to supplement face-to-face appointments and make receiving care more convenient for Veterans. Connected Care, which resulted from merging VA's Telehealth Services and Connected Health, is part of VA's efforts to streamline VA's digital health technologies to enrich Veteran care.^{7,8} Connected Care is comprised of VA Telehealth Services, MyHealtheVet, VA Mobile Health, and the VHA Innovation Program. VA Telehealth Services uses both synchronous (e.g. real-time videoconferencing between patients and a care team, remote medical device monitoring) and asynchronous (e.g. acquisition of and transmission of medical data for later review by providers, patient video education modules) communication to supplement face-to-face appointments and make receiving care more convenient for Veterans.^{7,8} Research shows that these initiatives have improved Veteran satisfaction by reducing travel and wait times.^{8,9} In addition, providers endorse improved access, care coordination, and quality of care.⁹ MyHealtheVet is VA's personal health record (PHR) which allows Veterans to record and view medical information, order medication refills, and send messages to their care team. VA Mobile Health develops apps to create new ways for Veterans and care teams to interact and coordinate care on mobile platforms. Finally, the VHA Innovation Program leverages both VA employees and private sector professionals to develop new ideas that improve VHA care and service to Veterans.^{7,8}

In order to maximize the benefit of these care delivery mechanisms, an EHR must be able to manage multiple different types of communication. In addition to synchronous (e.g. real-time video transmission, remote patient data monitoring) and asynchronous (store-and-forward) transmission, integration of mobile adjuncts and wearable devices (Internet of Things) need to be considered. VA has shown interest in incorporating medical devices and Internet of Things into patient care responsibly, and is investigating ways to ensure the security of these devices.^{39,40}

10.3 Advanced Computing

Advanced computing is leading to new evolutions in medical diagnosis, prognosis, and treatment. Artificial Intelligence (AI), defined broadly as “a branch of computer science dealing with the simulation of intelligent behavior in computers or the capability of a machine to imitate intelligent human behavior” is being utilized by the healthcare industry to power clinical decision support and diagnostic tools.^{41,42} Technologies like machine learning (including deep learning/neural networks) and natural language processing, are being applied to parse clinical notes, text elements of lab values and other relevant data from the EHR and other clinical sources in order to enhance a physician's diagnostic and treatment capabilities and in some cases to actually act as a caregiver via mobile technologies.⁴²⁻⁴⁴ AI tools (including large-scale implementations like Google's DeepMind and IBM's Watson) accomplish this by incorporating large amounts of clinical and subclinical data and then leveraging their high capacity processing capability in order to analyze this data and provide relevant information to the physician. Machine learning has the potential to assist physicians with differential diagnosis, treatment options suggestions and recommendations.^{42,45,46}

Internally, VA Informatics and Computing Infrastructure (VINCI) is an initiative that provides computing resources to improve researchers' access to large amounts of Veteran data to facilitate analysis while protecting privacy and security. VINCI is also engaged in developing an ecosystem for

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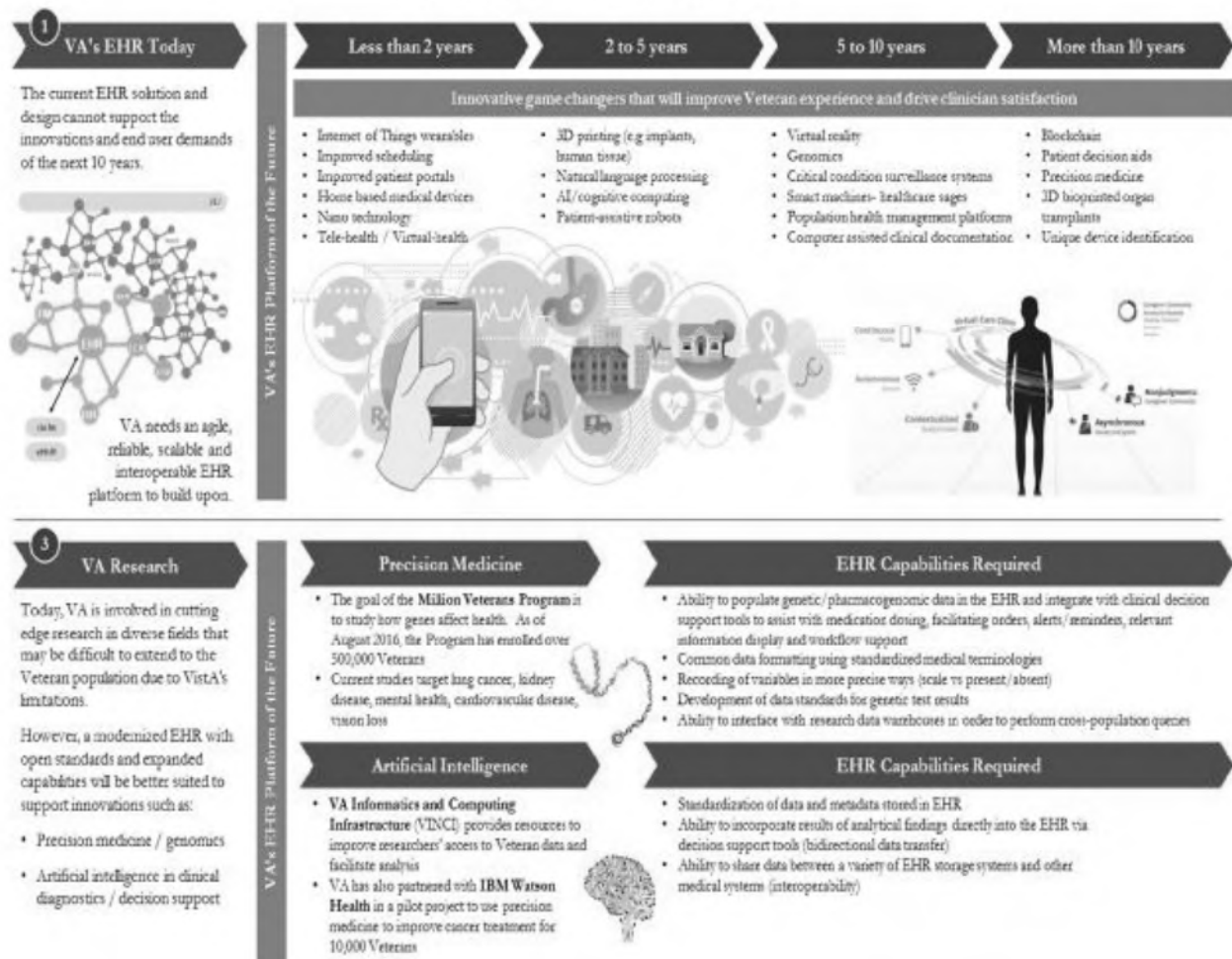
natural language processing that would ideally interface with VA's EHR⁴⁷⁻⁴⁹ Research projects already in progress by VA researchers include: using reinforcement learning (one type of AI) with mobile health tools to manage chronic pain, employing natural language processing to assess treatment performance for patients with congestive heart failure.^{43,44} Recently, VA engaged in a public-private partnership with IBM Watson in a pilot project to use precision medicine to improve cancer treatment for 10,000 Veterans.^{50,51}

In order to employ these technologies clinically, there needs to be standardization of data and metadata that is stored in EHRs, the ability to incorporate results of analytical findings directly into an EHR via clinical decision support tools in a bidirectional manner, and the ability to communicate between a variety of EHR and other medical storage systems.⁴⁶

10.4 Delivering Patient Care through Innovation

The graphic below (Figure C-1) looks at the current state of VA, including its EHR package and ongoing research activities in conjunction with a view of potential future innovative game changers and the required modern EHR capabilities that will improve Veteran experience and drive clinician satisfaction.

Figure C-1. VA EHR Transformation⁵²



11.0 Appendix D: Calculation of Cost Estimates

11.1 Option 1: COTS EHR

Option 1: COTS	Outcome																																	
COTS Vendor total costs years 1-15	<div>1. COTS Cost Break down for Implementation Phase of the Software costs. Based on a survey of leading industry EHR provides</div> <table><thead><tr><th></th><th>Included in COTs Quote</th><th>Cost Allocation</th></tr></thead><tbody><tr><td colspan="3">Cost Components</td></tr><tr><td>Software</td><td>Yes</td><td>28%</td></tr><tr><td>Vendor Team & Support</td><td>Yes</td><td>41%</td></tr><tr><td>Systems Integration</td><td>Yes</td><td>3%</td></tr><tr><td>IT Infrastructure HW & SW</td><td>No</td><td>6%</td></tr><tr><td>Application Support</td><td>No</td><td>11%</td></tr><tr><td>End user devices</td><td>No</td><td>2%</td></tr><tr><td>User training at Go-Live</td><td>No</td><td>8%</td></tr><tr><td>Other Project Cost</td><td>No</td><td>1%</td></tr><tr><td>Total</td><td>-</td><td>100%</td></tr></tbody></table> <div>2. Used an average of several vendor ROM estimates for a COTS implementation average of \$3.03B, this number was used as the basis for the estimate. This was divided by software (28%), Vendor Team & Support (41%) and Systems Integration (3%) for the total 10-year Implementation Cost of \$4.21B. The \$4.21B was then multiplied by the cost allocation for the given area to determine the component cost of these areas:<ul style="list-style-type: none">Total Vendor Cost = $\frac{\\$3,032,333,333}{72\%} = \\$4,211,574,074$Software = $28\% \times \\$4,211,574,074 = \\$1,179,240,741$Vendor Team & Support = $41\% \times \\$4,211,574,074 = \\$1,726,745,370$IT Infrastructure HW & SW = $6\% \times \\$4,211,574,074 = \\$252,694,444$Systems Integration = $3\% \times \\$4,211,574,074 = \\$126,347,222$Application Support = $11\% \times \\$4,211,574,074 = \\$463,273,148$End user devices = $2\% \times \\$4,211,574,074 = \\$84,231,481$User training at Go-live = $8\% \times \\$4,211,574,074 = \\$336,925,926$Other Project Cost = $1\% \times \\$4,211,574,074 = \\$42,115,741$</div> <div>3. The implementation timeline was assumed to be 13 instances of VistA per year for 10 years to cover all 130 instances of VistA at VA. The annual implementation cost per year were determined by the following calculation:<ul style="list-style-type: none">Software = $10\% \times \\$1,179,240,741 = \\$117,924,074$Vendor Team & Support = $10\% \times \\$1,726,745,370 = \\$172,674,537$</div>		Included in COTs Quote	Cost Allocation	Cost Components			Software	Yes	28%	Vendor Team & Support	Yes	41%	Systems Integration	Yes	3%	IT Infrastructure HW & SW	No	6%	Application Support	No	11%	End user devices	No	2%	User training at Go-Live	No	8%	Other Project Cost	No	1%	Total	-	100%
	Included in COTs Quote	Cost Allocation																																
Cost Components																																		
Software	Yes	28%																																
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User training at Go-Live	No	8%																																
Other Project Cost	No	1%																																
Total	-	100%																																

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- IT Infrastructure HW & SW = 10% x \$252,694,444= \$25,269,444
- Systems Integration = 10% x \$126,347,222= \$12,634,722
- Application Support = 10% x \$463,273,148= \$46,327,315
- End user devices = 10% x \$84,231,481= \$8,423,148
- User training at Go-live = 10% x \$336,925,926 = \$33,692,593
- Other Project Cost = 10% x \$42,115,741= \$4,211,574

4. Annual Maintenance and Support costs were derived from the vendor quotes by calculating the total amount of facilities per year being supported throughout the vendor's implementation phase and dividing non-service vendor costs by it.

Year	1	2	3	4	5	6	7	8	9	10
Fac/yr	0	1	7	10	25	25	25	25	25	25
Total Fac/yr	1		8	18	43	68	93	118	143	168

Total Facility Live Years 660
 10 Year Costs \$1,097,000,000 Net Total 10 Year Cost
 Per Year Per Facility Cost \$1,662,121 = \$1,097,000,000/660
 Annual Cost for 168 Hospitals \$279,236,363 = 1,662,121 * 168 Hospitals
 Total Post Implementation M&S \$1,396,181,818 = 279,236,363 * year 11-15.

However, as the number obtained is averaged with other vendor supplied numbers, post-implementation the annual cost are an average of \$266,412,121 per year.

5. Data mapping costs were from previous efforts, VA was able to complete comprehensive data migration tasks at 66 sites in 6 years and 10 months. The resources for this effort were 20 FTE, plus 200hrs of overtime per instance; this corresponds to 7.47 sites per year. In order to meet VA's current mapping goals of 130 instances within 8-years, VA will need to map 16.25 sites per year; this is an increase of 218% over the previous effort. As the limiting factor effecting integration is available FTEs, VA will need to scale-up staffing to 43.52 FTEs, while maintaining 200hrs of available overtime per instance.

1. Supporting Calculation:¹⁴

5.1.1 Historical Data

- 5.1.1.1 66 sites mapped / 6.833 years of effort = 7.47 site per year
 5.1.1.2 130 Total Vista Instances / 8 year project = 16.25 sites per year
 5.1.1.3 Subsequently a 218% faster project is need, the limiting constraint is assumed to be labor.
 5.1.1.4 20 FTE for original project tempo * 218% = 43.52 FTE needed
 5.1.1.5 ((FTE * Salary Level * Instances) + (Hourly Salary * OT Hours * Instances)) = \$505,382,301

<i>FTE Required</i>	<i>Salary Level (GS13, DC Locality)</i>	<i>Total Vista Instances to Migrate</i>	<i>Hourly Salary + OT</i>	<i>OT hours</i>
43.52	\$89,033	130	\$64.20	200
Migration Phase(Single Instance)	Per Site Cost	Notation		
Data Mapping	\$3,887,556	Calculated as ((FTE * Salary Level * Instances) + (Hourly Salary * OT Hours * Instances))/130 #This is how we did the data		

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	<table><tr><td>Total Cost to Migrate a Single Instance</td><td>\$3,887,556</td><td>mapping cost for the VDP Sum of all component costs</td></tr><tr><td>Total Cost to Migrate All VistA Instances</td><td>\$505,382,301</td><td>Per instance cost multiplied by number of instances</td></tr></table>	Total Cost to Migrate a Single Instance	\$3,887,556	mapping cost for the VDP Sum of all component costs	Total Cost to Migrate All VistA Instances	\$505,382,301	Per instance cost multiplied by number of instances											
Total Cost to Migrate a Single Instance	\$3,887,556	mapping cost for the VDP Sum of all component costs																
Total Cost to Migrate All VistA Instances	\$505,382,301	Per instance cost multiplied by number of instances																
Total 15-year Project Costs	<p>6. To calculate the total 15-year project cost the following calculations were used.</p> <ul style="list-style-type: none">Total 10-year Vendor Cost= sum of the Vendor total cost (software component costs plus annual maintenance and support costs) for years 1 through 10.Change management cost was assumed to be 25% given the scale and complexity of VA Change management cost= $\frac{\text{Total 10-year Vendor Cost}}{0.75} \times 0.25 = \\$1,052,893,519$Data migration cost were determined to be \$505,382,301Post-Implementation Software Cost = sum of the support totals for years 11-15 = \$1,332,060,606Prime Integrator = Software cost x (11/6) = \$2,161,941,358VA PMO= ((10-year Vendor cost + Change Management Cost + Data Migration Cost + Post-Implementation Software Cost + Prime Integrator)/0.8)x (0.2) = \$2,315,962,964Cloud Hosting:<ul style="list-style-type: none">This model assumes VA's storage, RAM and needed processing cores are equivalent to the values stated in the VDP Whitepaper, page 28.AWS GovCloud estimates were utilized for values. As hosting is a commodity within industry, these costs were deemed representative of the industry<table><tr><td>Storage Average (TB)</td><td>RAM (GB)</td><td>Cores</td></tr><tr><td>729.3</td><td>17,160</td><td>4290</td></tr></table> <table><tr><td>Storage Cost (per TB/mo)</td><td>\$656,370 (729.3TB x \$0.9 \$0.9 Storage cost per TB)</td></tr><tr><td>Storage Cost Per year</td><td>\$7,876,440 (Storage cost per month x 12)</td></tr></table> Each x1 server node has 72 cores. 4290 cores/72 = 59.58. Hosts are dedicated so 60 blades are needed Node cost is \$73,919 per year/per node ^{17,18} Processing Cost per Year: (Assume x1 Nodes Dedicated Host, Up-Front Pay) \$4,435,140 (Cost Per-node x Needed Nodes) <table><tr><td>Total 1-year Cost</td><td>\$12,311,580 (Cost Per-TB + Processing Cost)</td></tr><tr><td>Total 10-year Cost</td><td>\$123,115,800</td></tr><tr><td>Total 15-year Cost</td><td>\$184,673,700</td></tr></table> <ul style="list-style-type: none">Contingency was 20% of the total of 10-year Vendor cost + Change Management Cost + Data Migration Cost + Post- Implementation Software Cost + Prime Integrator + VA PMO + cloud hosting = \$2,352,897,704Total 15-year Cost \$14,117,386,226		Storage Average (TB)	RAM (GB)	Cores	729.3	17,160	4290	Storage Cost (per TB/mo)	\$656,370 (729.3TB x \$0.9 \$0.9 Storage cost per TB)	Storage Cost Per year	\$7,876,440 (Storage cost per month x 12)	Total 1-year Cost	\$12,311,580 (Cost Per-TB + Processing Cost)	Total 10-year Cost	\$123,115,800	Total 15-year Cost	\$184,673,700
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Total 10-year Cost	\$123,115,800																	
Total 15-year Cost	\$184,673,700																	

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11.2 Option 2: COTS with eHMP

Costing Step	Outcome																																
COTS Costing	For the COTS portion of Option 2: COTS + eHMP, the same costing approach was used as in Option 1: COTS																																
eHMP	<div>The eHMP component was costed using data provided by VA leadership</div> <div>The Year 1 Startup cost are as followed:</div> <table><tr><th>Start Up Cost</th><th>Year 1</th></tr><tr><td>Hosting at a Commercial Cloud- Services (OM)</td><td>\$ 18,000,000</td></tr><tr><td>Operational Support- Services (OM)</td><td>\$ 7,000,000</td></tr><tr><td>Software license Renewal (OM)</td><td>\$ 4,000,000</td></tr><tr><td>New SW Licenses (DME)</td><td>\$ 22,000,000</td></tr><tr><td>Cloud Migration- Services (DME)</td><td>\$ 8,000,000</td></tr><tr><td>WAN Connection- Equipment (DME)</td><td>\$ 11,000,000</td></tr><tr><td>Wan-Telecommunication Services (OM)</td><td>\$ 1,600,000</td></tr><tr><td>VHA-Org. Change Management (OCM)</td><td>\$ 25,000,000</td></tr><tr><td>Total</td><td>\$ 96,600,000</td></tr></table> <div>The Recurring eHMP Costs for Year 2 to Year 15</div> <table><tr><th>Recurring Cost</th><th>Year 1</th></tr><tr><td>Hosting at a Commercial Cloud- Services (OM)</td><td>\$ 18,000,000</td></tr><tr><td>Operational Support- Services (OM)</td><td>\$ 7,000,000</td></tr><tr><td>Software license Renewal (OM)</td><td>\$ 4,000,000</td></tr><tr><td>Wan-Telecommunication Services (OM)</td><td>\$ 1,600,000</td></tr><tr><td>Total</td><td>\$ 30,600,000</td></tr></table> <div>The total 15 year costs were determined to be \$525,000,000</div>	Start Up Cost	Year 1	Hosting at a Commercial Cloud- Services (OM)	\$ 18,000,000	Operational Support- Services (OM)	\$ 7,000,000	Software license Renewal (OM)	\$ 4,000,000	New SW Licenses (DME)	\$ 22,000,000	Cloud Migration- Services (DME)	\$ 8,000,000	WAN Connection- Equipment (DME)	\$ 11,000,000	Wan-Telecommunication Services (OM)	\$ 1,600,000	VHA-Org. Change Management (OCM)	\$ 25,000,000	Total	\$ 96,600,000	Recurring Cost	Year 1	Hosting at a Commercial Cloud- Services (OM)	\$ 18,000,000	Operational Support- Services (OM)	\$ 7,000,000	Software license Renewal (OM)	\$ 4,000,000	Wan-Telecommunication Services (OM)	\$ 1,600,000	Total	\$ 30,600,000
Start Up Cost	Year 1																																
Hosting at a Commercial Cloud- Services (OM)	\$ 18,000,000																																
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Total	\$ 96,600,000																																
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Software license Renewal (OM)	\$ 4,000,000																																
Wan-Telecommunication Services (OM)	\$ 1,600,000																																
Total	\$ 30,600,000																																
Adding COTs and eHMP	<div>The eHMP costs were added to the COTS cost for the 15-year total.</div> <table><tr><th>Years</th><th>eHMP</th><th>COTs</th></tr><tr><td>1</td><td>\$96,600,000</td><td>\$421,157,407</td></tr><tr><td>2</td><td>\$30,600,000</td><td>\$421,157,407</td></tr><tr><td>3</td><td>\$30,600,000</td><td>\$421,157,407</td></tr></table>	Years	eHMP	COTs	1	\$96,600,000	\$421,157,407	2	\$30,600,000	\$421,157,407	3	\$30,600,000	\$421,157,407																				
Years	eHMP	COTs																															
1	\$96,600,000	\$421,157,407																															
2	\$30,600,000	\$421,157,407																															
3	\$30,600,000	\$421,157,407																															

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	4	\$30,600,000	\$421,157,407
	5	\$30,600,000	\$421,157,407
	6	\$30,600,000	\$421,157,407
	7	\$30,600,000	\$421,157,407
	8	\$30,600,000	\$421,157,407
	9	\$30,600,000	\$421,157,407
	10	\$30,600,000	\$421,157,407
	11	\$30,600,000	\$266,945,425
	12	\$30,600,000	\$266,945,425
	13	\$30,600,000	\$266,945,425
	14	\$30,600,000	\$266,945,425
	15	\$30,600,000	\$266,945,425
	Total 15-year Costs		\$6,068,634,680
	*assuming average COTs Vendor Costs		
Total Project Costs Calculation	The total project costs were calculated as in the same method as in Option 1: COTS.		
	Total 15-year Project Cost	Total Cost	% of Total Cost
	Total 10-year Vendor Cost	\$ 4,583,574,074	29%
	Change Management Cost	\$ 1,527,858,025	10%
	Data Migration Cost	\$ 505,382,301	3%
	Post-Implementation Software Cost	\$ 1,485,060,606	10%
	Prime Integrator	\$ 2,161,941,358	14%
	VA PMO	\$ 2,565,954,091	16%
	Cloud Hosting	\$ 184,673,700	1%
	Subtotal	\$ 13,014,444,155	83%
	Contingency (20%)	\$ 2,602,888,831	17%
	Total 15-year Cost	\$15,617,332,985	

11.3 Option 3: Commercialization of Vista

Costing Step	Outcome
Vista Calculations	<p>As in the other analysis, a vendor ROM estimate for EHR implementation of \$554M was used as the basis; this number was divided by the percentage cost centers for: software (28%), Vendor Team & Support (41%), Systems Integration (3%) and Go-Live training (8%) for a total Vendor Cost of \$694,186,047.</p> <p>An identical distribution of EHR cost centers were utilized as in the commercial SaaS (Option 4: COTS SaaS) model.</p>

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	<p>Total Vendor Cost=</p> <ul style="list-style-type: none">Total Vendor Cost = $\frac{\\$554,000,000}{80\%} = \\$694,186,047$ <p>The \$694,186,047 was then multiplied by the cost allocation for the given area to determine the component cost of these areas:</p> <table><tr><th>Costs Components</th><th>Cost Allocation</th><th>Component</th></tr><tr><td>Software</td><td>28%</td><td>\$ 194,372,093</td></tr><tr><td>Vendor Team & Support</td><td>41%</td><td>\$ 284,616,279</td></tr><tr><td>IT Infrastructure HW & SW</td><td>6%</td><td>\$ 41,651,163</td></tr><tr><td>Systems Integration</td><td>3%</td><td>\$ 20,825,581</td></tr><tr><td>Application Support</td><td>11%</td><td>\$ 76,360,465</td></tr><tr><td>End user devices</td><td>2%</td><td>\$ 13,883,721</td></tr><tr><td>User training at Go-Live</td><td>8%</td><td>\$ 55,534,884</td></tr><tr><td>Other Project Cost</td><td>1%</td><td>\$ 6,941,860</td></tr><tr><td>Total</td><td></td><td>\$ 694,186,047</td></tr></table> <p>The annual maintenance and support costs was calculated for each year by the formula:</p> <ul style="list-style-type: none">Annual Maintenance & Support Cost=$\frac{1}{\text{\# of Instances Implemented}} \times \\$1,800,000 \text{ (average cost M\&S per VistA instance)}$ <p>The annual maintenance cost for the implementation phase (years 1-10) were included in the cost estimate.</p>	Costs Components	Cost Allocation	Component	Software	28%	\$ 194,372,093	Vendor Team & Support	41%	\$ 284,616,279	IT Infrastructure HW & SW	6%	\$ 41,651,163	Systems Integration	3%	\$ 20,825,581	Application Support	11%	\$ 76,360,465	End user devices	2%	\$ 13,883,721	User training at Go-Live	8%	\$ 55,534,884	Other Project Cost	1%	\$ 6,941,860	Total		\$ 694,186,047
Costs Components	Cost Allocation	Component																													
Software	28%	\$ 194,372,093																													
Vendor Team & Support	41%	\$ 284,616,279																													
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Systems Integration	3%	\$ 20,825,581																													
Application Support	11%	\$ 76,360,465																													
End user devices	2%	\$ 13,883,721																													
User training at Go-Live	8%	\$ 55,534,884																													
Other Project Cost	1%	\$ 6,941,860																													
Total		\$ 694,186,047																													
VistA Modernization	<p>Vista 4 Evolution Cost Centers were pulled from the Vista 4 Life Cycle Cost Estimate document.</p> <p>The relevant cost centers were determined to be:</p> <table><tr><td>Government Program Management</td><td>\$ 54,630,000</td></tr><tr><td>Program Management-Contractor</td><td></td></tr><tr><td>System Engineering</td><td>\$ 84,200,000</td></tr><tr><td>API Exposure</td><td>\$ 36,960,000</td></tr><tr><td>API Exposure 2.0</td><td>\$ 8,780,000</td></tr><tr><td>API Exposure 2.0-Phase II</td><td>\$ 6,390,000</td></tr><tr><td>Clinical Capabilities- EHR Certification 2014</td><td>\$ 859,890,000</td></tr><tr><td>Clinical Decision Support</td><td>\$ 23,450,000</td></tr><tr><td>Clinician Services (Misc. clinical modules)</td><td>\$ 30,520,000</td></tr><tr><td>Clinician Services Lab/Pharmacy</td><td>\$ 97,910,000</td></tr><tr><td>Clinician Services Phase II</td><td>\$ 71,600,000</td></tr><tr><td>Clinician User Interfaces</td><td>\$ 85,530,000</td></tr><tr><td>eHMP Enterprise Wide Deployment</td><td></td></tr></table>	Government Program Management	\$ 54,630,000	Program Management-Contractor		System Engineering	\$ 84,200,000	API Exposure	\$ 36,960,000	API Exposure 2.0	\$ 8,780,000	API Exposure 2.0-Phase II	\$ 6,390,000	Clinical Capabilities- EHR Certification 2014	\$ 859,890,000	Clinical Decision Support	\$ 23,450,000	Clinician Services (Misc. clinical modules)	\$ 30,520,000	Clinician Services Lab/Pharmacy	\$ 97,910,000	Clinician Services Phase II	\$ 71,600,000	Clinician User Interfaces	\$ 85,530,000	eHMP Enterprise Wide Deployment					
Government Program Management	\$ 54,630,000																														
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Clinician Services Phase II	\$ 71,600,000																														
Clinician User Interfaces	\$ 85,530,000																														
eHMP Enterprise Wide Deployment																															

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	Enhancements to Scheduling Module	\$ 4,090,000
	FileMan Modernization	\$ 1,370,000
	Immunization Module	\$ 15,920,000
	Interoperability/Data Standard (FileMan)	\$ 29,010,000
	Interoperability/Data Standard (Pharmacy)	\$ 64,620,000
	Laboratory Module Enhancements	\$ 28,170,000
	Laboratory Module Modernization	\$ 30,500,000
	Pharmacy Module	\$ 25,100,000
	Radiology	\$ 29,580,000
	Scheduling Module	\$ 8,520,000
	Specialty Clinical Modules (Women's Health)	\$ 21,050,000
	Veteran Authorization and Preferences	\$ 7,090,000
	VistA Immunization Enhancement	\$ 1,800,000
	VistA Service Assembler- Phase II	
	VistA Services Assembler	
	Total	\$ 1,626,680,000
	<p>It was assumed a risk sharing of 50:50 would occur between VA and the commercial vendor, which lowered this amount to \$813,340,000.</p> <p>This was then distributed over a 10-year implementation period on an equal basis of 10% per year, or \$81,334,000 annually throughout implementation.</p>	
15-Year Project Costs	<p>To calculate the total 15-year project cost the following calculations were used.</p> <ul style="list-style-type: none"> Total 10-year Vendor Cost= sum of the Vendor total cost (software component costs plus annual maintenance and support costs) for years 1 through 10 = \$1,507,526,047 Change management cost was assumed to be 25% given the scale and complexity of VA Change management cost= $\frac{\text{Total 10-year Vendor Cost}}{0.75} \times 0.25 = \\$1,109,047,840$ Data migration cost were determined to be \$505,382,301 with the same methodology as in the rest of the Options as VistA does not have a common model and enforced data standards. Post-Implementation Software Cost = sum of support costs total for years 11-15 = \$1,170,000,000 Prime Integrator = Software cost x (11/6) = \$1,707,933,673 VA PMO costs = ((10-year Vendor cost + Change Management Cost + Data Migration Cost + Post- Implementation Software Cost + Prime Integrator)/0.8)x (0.2) = \$2,328,407,136 Contingency was calculated at 20% of the total of 10-year Vendor cost + Change Management Cost + Data Migration Cost + Post- Implementation Software Cost + Prime Integrator + VA PMO = \$1,665,659,399 Total 15-year costs are calculated at = \$9,993,956,395 	

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11.4 Option 4: SaaS

Costing Step	Outcome																												
Vendor ROM Cost	<p>Used an average of several vendor ROM estimates for a COTS implementation average of \$3.03B, this number was used as the basis for the estimate. This number was then multiplied by a scalar factor of .79 in order to adjust the cost COTS average to a SaaS implementation number.</p> <p>Scalars are derived as follows:</p> <table><tr><th></th><th>Implementation Costs</th><th>Yearly Cost (After Year 1)</th><th>5-yr TCO</th></tr><tr><td>Non-SaaS:</td><td>33000</td><td>4000</td><td>48000</td></tr><tr><td>SaaS:</td><td>26000</td><td>8000</td><td>58000</td></tr><tr><td>Factor:</td><td>0.787878788</td><td>2</td><td>1.208333333</td></tr><tr><td>Narrative:</td><td>Implementation costs (including 1st year licensing cost) for a SaaS option is 79% of what it would be for a COTS option</td><td>Annual recurring costs for a SaaS option are 200% of what it would be for a COTS option</td><td>This is built out to a 5-year model. At this resolution, SaaS is more expensive than COTS by about %21</td></tr></table> <p>Total SaaS Implementation Costs = Vendor Average * .79 = \$2,395,543,333.33</p> <p>This was divided by software (28%), Vendor Team & Support (41%) and Systems Integration (3%) for the total 10-year Implementation Cost of \$3.3B. The \$3.3B was then multiplied by the cost allocation for the given area to determine the component cost of these areas:</p> <p>Total SaaS Vendor Cost=</p> <ul style="list-style-type: none">Total Vendor Cost = $\frac{\\$2,395,543,333}{72\%} = \\$3,327,143,519$ <p>The software cost components were determined by the following calculations. These were then scaled over the course of the 10-year implementation and 5-year post-go-live phase.</p> <ul style="list-style-type: none">Software = 28% x \$3,327,143,519 = \$931,600,185Vendor Team & Support = 41% x \$3,327,143,519 = \$1,364,128,843IT Infrastructure HW & SW = 6% x \$3,327,143,519 = \$199,628,611Systems Integration = 3% x \$3,327,143,519 = \$99,814,306Application Support = 11% x \$3,327,143,519 = \$365,985,787End user devices = 2% x \$3,327,143,519 = \$66,542,870User training at Go-live = 8% x \$3,327,143,519 = \$266,171,481Other Project Cost = 1% x \$3,327,143,519 = \$33,271,435 <table><tr><th>Year</th><th>Number of Hospitals</th></tr><tr><td>1</td><td>0</td></tr><tr><td>2</td><td>1</td></tr><tr><td>3</td><td>7</td></tr></table>		Implementation Costs	Yearly Cost (After Year 1)	5-yr TCO	Non-SaaS:	33000	4000	48000	SaaS:	26000	8000	58000	Factor:	0.787878788	2	1.208333333	Narrative:	Implementation costs (including 1st year licensing cost) for a SaaS option is 79% of what it would be for a COTS option	Annual recurring costs for a SaaS option are 200% of what it would be for a COTS option	This is built out to a 5-year model. At this resolution, SaaS is more expensive than COTS by about %21	Year	Number of Hospitals	1	0	2	1	3	7
	Implementation Costs	Yearly Cost (After Year 1)	5-yr TCO																										
Non-SaaS:	33000	4000	48000																										
SaaS:	26000	8000	58000																										
Factor:	0.787878788	2	1.208333333																										
Narrative:	Implementation costs (including 1st year licensing cost) for a SaaS option is 79% of what it would be for a COTS option	Annual recurring costs for a SaaS option are 200% of what it would be for a COTS option	This is built out to a 5-year model. At this resolution, SaaS is more expensive than COTS by about %21																										
Year	Number of Hospitals																												
1	0																												
2	1																												
3	7																												

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	4	10
	5	25
	6	25
	7	25
	8	25
	9	25
	10	25
	11	-
	12	-
	13	-
	14	-
	15	-
	<p>The annual maintenance and support costs was calculated for each year by the formula:</p> <ul style="list-style-type: none"> Annual Maintenance & Support Cost= $\frac{1}{\text{\# of Hospitals Implemented}} \times \\$532,824,242$ (average cost) The vendor provided a range of annual maintenance post-go-live of \$220,000,000-\$300,000,000. These costs were averaged \$266,412,121, as per the method utilized for implementation, this number was then multiplied by a scalar factor of 2 to yield: \$532,824,242 	
15-year project Cost	<p>To calculate the total 15-year project cost the following calculations were used.</p> <ul style="list-style-type: none"> Total 10-year Vendor Cost= sum of the Vendor total cost (software component costs plus annual maintenance and support costs) for years 1 through 10 = \$3,327,143,519 Change management cost was assumed to be 25% given the scale and complexity of VA Change management cost= $\frac{\text{Total 10-year Vendor Cost}}{0.75} \times 0.25 = \\$1,109,047,840$ Data migration cost were determined to be \$505,382,301 with the same methodology as in Option 1: COTS. Post-Implementation Software Cost = sum of the support totals for years 11-15 = \$2,664,121,212 Prime Integrator = Software cost x (11/6) = \$1,707,933,673 VA PMO= ((10-year Vendor cost + Change Management Cost + Data Migration Cost + Post-Implementation Software Cost + Prime Integrator)/0.8)x (0.2) = \$2,328,407,136 Contingency was 20% of the total of 10-year Vendor cost + Change Management Cost + Data Migration Cost + Post- Implementation Software Cost + Prime Integrator + VA PMO = \$2,328,407,136 Total 15-Year Cost = \$13,970,442,816 	

12.0 Appendix E: VistA Packages

The table below provides a complete list of VistA packages. Modules specific to EHR are bolded and italicized.

Package Type	Package Name	Package Name
Clinical	Admission Discharge Transfer (ADT)	Methicillin Resistant Staph Aurerus (MRSA)
Clinical	Ambulatory Care Reporting	Mobile Electronic Documentation (MED)
Clinical	Anticoagulation Management Tool (AMT)	Mobile Scheduling Applications Suite (MBAA)
Clinical	Automated Service Connected Designation (ASCD)	Multiple Sclerosis Surveillance Registry (MSSR)
Clinical	Bar Code Expansion (BCE)	Nationwide Health Information Network Adapter (NHIN)
Clinical	Beneficiary Travel	Nursing
Clinical	Blind Rehabilitation	Nutrition and Food Service (NFS)
Clinical	Care Management	ONCOLOGY
Clinical	Clinical Case Registries	Patient Appointment Info. Transmission (PAIT)
Clinical	Clinical Procedures	Patient Assessment Documentation Package (PADP)
Clinical	Clinical/Health Data Repository (CHDR)	Patient Care Encounter (PCE)
Clinical	Computerized Patient Record System (CPRS)	Patient Centered Management Module (PCMM Web)
Clinical	CPRS: Adverse Reaction Tracking (ART)	Patient Record Flags
Clinical	CPRS: Authorization Subscription Utility (ASU)	Pharm: Automatic Replenish / Ward Stock (AR/WS)
Clinical	CPRS: Clinical Reminders	Pharm: Bar Code Medication Administration (BCMA)
Clinical	CPRS: Consult/Request Tracking	Pharm: Benefits Management (PBM)
Clinical	CPRS: Health Summary	Pharm: Consolidated Mail Outpatient Pharmacy
Clinical	CPRS: Problem List	Pharm: Controlled Substances
Clinical	CPRS: Text Integration Utility (TIU)	Pharm: Data Management (PDM)
Clinical	Dentistry	Pharm: Drug Accountability
Clinical	Electronic Wait List	Pharm: Inpatient Medications
Clinical	Emergency Department Integration Software (EDIS)	Pharm: National Drug File (NDF)
Clinical	Functional Independence Measurement (FIM)	Pharm: Outpatient Pharmacy
Clinical	Group Notes	Pharm: Prescription Practices (PPP)
Clinical	HDR - Historical (HDR-Hx)	Primary Care Management Module (PCMM)
Clinical	Health Management Platform	Prosthetics
Clinical	Home Based Primary Care (HBPC)	Quality Audiology and Speech Analysis and Reporting (QUASAR)
Clinical	Home Telehealth	Radiology / Nuclear Medicine
Clinical	Immunology Case Registry (ICR)	RAI/MDS
Clinical	Incomplete Records Tracking (IRT)	Registries Airborne Hazard Open Burn Pit (AHOBPR)
Clinical	Intake and Output	Registries Military Eye Vision Injury (MEVIR)
Clinical	Laboratory	Remote Order Entry System (ROES)
Clinical	Laboratory: Anatomic Pathology	Scheduling

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Clinical	Laboratory: Blood Bank	Shift Handoff Tool
Clinical	Laboratory: Blood Bank Workarounds	Social Work
Clinical	Laboratory: Electronic Data Interchange (LEDI)	Spinal Cord Dysfunction
Clinical	Laboratory: Emerging Pathogens Initiative (EPI)	Standards & Terminology Services (STS)
Clinical	Laboratory: Howdy Computerized Phlebotomy Login Process	Surgery
Clinical	Laboratory: National Laboratory Tests (NLT) Documents and LOINC Request Form	Traumatic Brain Injury (TBI)
Clinical	Laboratory: Point of Care (POC)	Virtual Patient Record
Clinical	Laboratory: Universal Interface	VistA Imaging System
Clinical	Laboratory: VistA Blood Establishment Computer Software (VBECS)	VistAWeb
Clinical	Lexicon Utility	Visual Impairment Service Team (VIST)
Clinical	Medicine	Vitals / Measurements
Clinical	Mental Health	Women's Health
Financial-Administrative	Accounts Receivable (AR)	Hospital Inquiry (HINQ)
Financial-Administrative	Auto Safety Incident Surv Track System (ASISTS)	ICD-9-CM
Financial-Administrative	Automated Information Collection System (AICS)	IFCAP
Financial-Administrative	Automated Medical Information Exchange (AMIE)	Incident Reporting
Financial-Administrative	Bed Management Solution (BMS)	Income Verification Match (IVM)
Financial-Administrative	Clinical Monitoring System	Integrated Billing (IB)
Financial-Administrative	Compensation and Pension Record Interchange (CAPRI)	Integrated Patient Funds
Financial-Administrative	Current Procedural Terminology (CPT)	Library
Financial-Administrative	Decision Support System (DSS) Extracts	Occurrence Screen
Financial-Administrative	Diagnostic Related Group (DRG) Grouper	Patient Representative
Financial-Administrative	Electronic Claims Management Engine (ECME)	Personnel and Accounting Integrated Data (PAID)
Financial-Administrative	Engineering (AEMS / MERS)	Police and Security
Financial-Administrative	Enrollment Application System	Quality Management Integration Module
Financial-Administrative	Equipment / Turn-In Request	Record Tracking
Financial-Administrative	Event Capture System (ECS)	Release of Information (ROI) Manager
Financial-Administrative	Fee Basis	Veterans Identification Card (VIC/PICS)
Financial-Administrative	Fugitive Felon Program (FFP)	Voluntary Service System (VSS)
Financial-Administrative	Generic Code Sheet (GCS)	WebHR
Financial-Administrative	Health Eligibility Center (HEC)	Wounded Injured and Ill Warrior

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HealtheVet	Breast Care Registry	Pharm: Medication Order Check Healthcare Application (MOCHA)
HealtheVet	Clinical Information Support System (CISS)	Pharm: Pharmacy Data Update (DATUP)
HealtheVet	Electronic Signature (ESig)	Pharm: Pharmacy Enterprise Customization System (PECS)
HealtheVet	HealtheVet Web Services Client (HWSC)	Pharm: Pharmacy Product System - National (PPS-N)
HealtheVet	MyHealtheVet	Registries
HealtheVet	National Utilization Management Integration (NUMI)	<i>Spinal Cord Injury and Disorders Outcomes (SCIDO)</i>
HealtheVet	<i>Occupational Health Record-keeping System (OHRS)</i>	VA Enrollment System (VES)
HealtheVet	Patient Advocate Tracking System (PATS)	Veterans Personal Finance System (VPFS)
HealtheVet	Person Services	VHA Point Service (Kiosks)
Infrastructure	<i>Capacity Management Tools</i>	M-to-M Broker
Infrastructure	Duplicate Record Merge: Patient Merge	Name Standardization
Infrastructure	Electronic Error and Enhancement Reporting (E3R)	National Online Information Sharing (NOIS)
Infrastructure	Enterprise Exception Log Service (EELS)	National Patch Module (NPM)
Infrastructure	FatKAAT	Network Health Exchange (NHE)
Infrastructure	FileMan	Patient Data Exchange (PDX)
Infrastructure	FileMan Delphi Components (FMDC)	Remote Procedure Call (RPC) Broker
Infrastructure	Health Data Informatics	Resource Usage Monitor (RUM)
Infrastructure	HL7 (VistA Messaging)	Single Sign on/User Context (SSO/UC)
Infrastructure	Institution File Redesign (IFR)	SlotMaster (Kernel ZSLOT)
Infrastructure	KAAJEE	SQL Interface (SQLI)
Infrastructure	Kernel	Standard Files and Tables
Infrastructure	Kernel Delphi Components (KDC)	Statistical Analysis of Global Growth (SAGG)
Infrastructure	Kernel Toolkit	Survey Generator
Infrastructure	Kernel Unwinder	System Toolkit (STK)
Infrastructure	List Manager	VistA Data Extraction Framework (VDEF)
Infrastructure	MailMan	VistA System Monitor (VSM)
Infrastructure	Master Patient Index (MPI)	VistALink
Infrastructure	Medical Domain Web Services (MDWS)	XML Parser (VistA)

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Strategic Options for the Modernization of VA's EHR

1.0 Executive Summary

The Department of Veterans Affairs (VA) engaged Grant Thornton to assess four strategic options for modernizing its Electronic Health Record (EHR)¹. VA's EHR has not kept pace with industry and does not adequately support the current and future needs of Veterans and VA clinicians. This analysis assessed the market's ability to meet VA's needs through these four strategic options.

Figure 1. EHR Strategic Options

Option 1: COTS	Adopting a Commercial-of-the-shelf (COTS) product for the EHR where VA hosts the solution in a VA purchased, federally certified, secure cloud environment
Option 2: COTS + eHMP/JLV	Adopting a Commercial-of-the-shelf product for the EHR including the Electronic Health Management Platform (eHMP) and the Joint Legacy Viewer (JLV), where VA hosts the solution in a VA purchased, federally certified, secure cloud
Option 3: Commercialized Vista	Providing a gold standard Vista version to a vendor to modernize and provide back to VA as a Software as a Service (SaaS), where the vendor hosts the solution in a federally certified, secure cloud, and provides discounted licensing
Option 4: COTS SaaS	Adopting a COTS product for the EHR where the vendor hosts the solution in a federally certified, secure cloud, and VA licenses software use

The analysis found that the market can provide for VA's EHR needs with low variability in cost among the options leaving the primary differences in the value VA will place on the benefits and risks of owning and administering the software and the degree of influence and autonomy that VA can exercise. *Option 3: Commercialized Vista* is the least expensive option but carries the greatest risk. Potential modernization partners include immature start up business that carry risk in sustaining their business and risk in scaling to the VA enterprise. Other potential partners include mature businesses who do not anticipate adequate economic return for their investment due to low potential market capture. *Option 2: COTS + eHMP/JLV* is the most expensive option and is less aligned with OI&T's strategic priority to buy first. However, both *Option 3: Commercialized Vista* and *Option 2: COTS + eHMP/JLV* provide VA the highest degree of tailorability.

Comparatively, *Option 1: COTS* and *Option 4: COTS SaaS*, cost the same and primarily vary in the control and flexibility VA retains over the EHR. If VA hosts the EHR, it has greater flexibility to integrate new solutions as they emerge in the market, but would bear the responsibility for hosting, which requires IT investment and skills. Unlike *Option 4: COTS SaaS*, where the vendor would bear the responsibility for hosting the EHR, VA would have to negotiate the addition of new solutions during contract negotiations. Because the decision among the strategic options resides on trade-offs between a few key factors, the next section will address those factors and their trade-offs.

¹ According to the Healthcare Information and Management Systems Society (HIMSS), "Electronic Health Record (EHR) is a longitudinal electronic record of patient health information generated by one or more encounters in any care delivery setting. Included in this information are patient demographics, progress notes, problems, medications, vital signs, past medical history, immunizations, laboratory data and radiology reports. ... The EHR has the ability to generate a complete record of a clinical patient encounter - as well as supporting other care-related activities directly or indirectly via interface - including evidence-based decision support, quality management, and outcomes reporting."

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Key Decision Criteria and Trade-offs

We evaluated the strategic options against VA's clinical and IT priorities, strategic direction and future trends in healthcare and health IT to derive the decision criteria. Figure 2 highlights how each option addresses the key decision criteria.

Figure 2. Decision Criteria applied to each Option

Decision Factor	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercialized VistA	Option 4: COTS SaaS
Time to Initial Operating Capability (IOC)	<ul style="list-style-type: none"> Out-of-the-box functionalities fulfilling >80% of VA's needs Estimate 18-24 months to IOC ~ Pilot Site post acquisition 	<ul style="list-style-type: none"> Out-of-the-box functionalities fulfilling >80% of VA's needs Additional time to re-design and scale eHMP to COTS solution Estimate 18-24 months to IOC ~ Pilot Site post acquisition 	<ul style="list-style-type: none"> Requires modernizing a single instance of VistA software prior to implementing, which will add at minimum an additional 12 months Estimate 24-36 months to IOC ~ Pilot Site post acquisition 	<ul style="list-style-type: none"> Out-of-the-box functionalities fulfilling >80% of VA's needs Estimate 18-24 months to IOC ~ Pilot Site post acquisition
Interoperability with other health systems	<ul style="list-style-type: none"> All top tier COTS vendors meet multiple interoperability standards (e.g., FHIR) to create longitudinal record 	<ul style="list-style-type: none"> Same as Option 1: COTS. Also, JLV provides a static view of external records, but does not create the longitudinal record eHMP to provide longitudinal record 	<ul style="list-style-type: none"> Interoperability capability would have to be built into the commercialized VistA solution 	<ul style="list-style-type: none"> All top tier COTS vendors meet multiple interoperability standards (e.g., FHIR) to create longitudinal record
Flexibility	<ul style="list-style-type: none"> VA administered cloud increases VA flexibility to access 3rd party vendors (e.g., best in class population health) 	<ul style="list-style-type: none"> Same as Option 1 for COTS eHMP for new capabilities over time, dependent on development time, which may exceed market timeliness 	<ul style="list-style-type: none"> Vendor administered cloud decreases VA flexibility to access 3rd party vendors (e.g., best in class population health) because vendors may have pre-existing agreements. 	<ul style="list-style-type: none"> Vendor administered cloud decreases VA flexibility to access 3rd party vendors (e.g., best in class population health) because vendors may have pre-existing agreements.
Modernity	<ul style="list-style-type: none"> Industry leading software that regularly upgrades based on best practices and industry innovation Fully integrated solution with modern team based communications 	<ul style="list-style-type: none"> Same as Option 1 for COTS eHMP functionality would need to be de-conflicted of overlapping capability and then integrated with the COTS product. 	<ul style="list-style-type: none"> Vendor's commitment to continuous upgrade contingent on ability to sell the solution at other clients and make a profit VA may have to invest or enter into risk sharing arrangements if the vendor is not able to sell the solution to a critical mass to break even 	<ul style="list-style-type: none"> Same as Option 1: COTS
Tailorability	<ul style="list-style-type: none"> COTS out-of-the-box capabilities allow software configuration to meet end-user practice preference (e.g., physician note templates) 	<ul style="list-style-type: none"> Same as Option 1: COTS eHMP adds capability to tailor because it is a VA developed and managed product 	<ul style="list-style-type: none"> Highest level of tailorability May require additional cost to purchase leading business and clinical workflows from 3rd party entities 	<ul style="list-style-type: none"> Same as Option 1: COTS, except code level change (customization) may not be possible because software may be shared by other clients of the COTS vendor (e.g., DoD)

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Decision Factor	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercialized VistA	Option 4: COTS SaaS
	<ul style="list-style-type: none"> Code level change (customization) incurs additional cost 			
IT Strategic Alignment	<ul style="list-style-type: none"> Aligns with all the strategic priorities except cloud is VA administered 	<ul style="list-style-type: none"> Does <u>not</u> align with the following strategic priorities: buy first, reduce IT footprint 	<ul style="list-style-type: none"> Aligns with all IT priorities 	<ul style="list-style-type: none"> Aligns with all IT priorities
Cost	<ul style="list-style-type: none"> Total = \$16.2B Includes \$184M for VA cloud hosting 	<ul style="list-style-type: none"> Total = \$18.7B Includes \$525M for eHMP cost 	<ul style="list-style-type: none"> Total = \$11.9B Assumes \$830M software costs absorbed by vendor 	<ul style="list-style-type: none"> \$16.0B VA does not incur hosting costs
Relative Risk	<ul style="list-style-type: none"> Medium risk since vendors implement their solutions in this manner routinely 	<ul style="list-style-type: none"> Higher risk due to continued reliance on internally developed software 	<ul style="list-style-type: none"> High risk due to limited partner viability or appetite 	<ul style="list-style-type: none"> Medium risk since vendors have SaaS models in place

Figure 3 provides a detailed breakdown of 15-year costs associated with each option. Grant Thornton surveyed industry to determine the typical cost breakdown of EHR implementations and used the software costs provided by vendor estimates to extrapolate the total cost of vendor and prime integrator costs. Additional details regarding the basis for costs are provided in the Section 4.0 of this document as well as in Appendix D.

Figure 3. Rough Order of Magnitude 15-year Costs of Four Options

Cost Component	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercialized VistA	Option 4: COTS SaaS
Vendor Costs				
Software Implementation Cost	\$4,211,574,074	\$4,736,574,074	\$1,507,526,047	\$3,327,143,519
Post-Go-Live Software Cost	\$1,332,060,606	\$1,332,060,606	\$1,170,000,000	\$2,664,121,212
Vendor Total	\$5,543,634,680	\$6,068,634,680	\$2,677,526,047	\$5,991,264,731
Services Cost				
Change Management Cost	\$1,052,893,519	\$1,527,858,025	\$1,109,047,840	\$1,109,047,840
Data Migration Cost	\$505,382,301	\$505,382,301	\$505,382,301	\$505,382,301
Prime Integrator	\$2,161,941,358	\$2,161,941,358	\$1,707,933,673	\$1,707,933,673
VA PMO Cost	\$2,315,962,964	\$2,565,954,091	\$2,328,407,136	\$2,328,407,136
Cloud Hosting	\$184,673,700	\$184,673,700	-	-
Services Subtotal	\$6,220,853,842	\$6,945,809,474	\$5,650,770,949	\$5,650,770,949
Contingency	\$2,352,897,704	\$2,602,888,831	\$1,665,659,399	\$2,328,407,136
Subtotal	\$14,117,386,226	\$15,617,332,985	\$9,993,956,395	\$13,970,442,816
Complexity Factor*	\$2,117,607,934	\$3,123,466,597	\$1,998,791,279	\$2,095,566,422
Grand Total	\$16,234,994,160	\$18,740,799,583	\$11,992,747,674	\$16,066,009,238

* Due to the early stage of planning for the EHR modernization, lack of business and technical requirements, and the complex nature of transitioning from 130 instances of VistA, we expect additional complexity and cost to be identified during the planning phase of this effort. We therefore added a 15% complexity factor to Options 1 and 4 and a 20% complexity factor to Options 2 and 3 to account for their respective complexities.

Summary

Multiple strategic paths exist for VA's EHR Modernization, each with their own risks, costs and benefits. Understanding the relative value of the different decision criteria will help VA to make its decision. When assessing this relative value, it is helpful to think about the state of VA at two points in time: 1) One (1) year after acquisition of a new EHR, and 2) Ten (10) years after acquisition. These two points in time reflect key junctures where VA will want to understand what success looks like, after which VA can determine which options are most critical to that success. Secretary Shulkin described success for VA at one year as a time similar to where DoD is now with a decision made, a pilot in one area, and steady, deliberate progress being made. For the ten year juncture, research materials and interviewees described a modern health system with readily exchangeable information and tools that enable advanced analytics, including precision medicine and population health, and intelligence into clinical workflows and decision making. Framing a VA leadership discussion around success at these two junctures and prioritizing the decision criteria, will enable VA leaders to select an option that creates a shared vision of success and is in alignment with the full organization's strategic direction.

2.0 Background

The Veterans Health Administration (VHA) is the largest integrated healthcare system in the United States, providing care at more than 1,200 sites of care, serving more than 8.9 million Veterans each year.^{1,2} In many ways, VHA provides care to Veterans similarly to how their commercial counterparts provide care to the general population. However, VHA has a unique mission, patient demographic and disease burden (e.g., combat and exposure related conditions) that has an impact on how they manage the Veteran population and how they execute their quartet mission of caring for the Veterans, supporting medical research, providing medical education and serving as a back-up to DoD during national emergencies.

VHA's goal to provide whole healthcare to Veterans, no matter their geographic location or economic circumstance, drives the need for a network providing the full range of integrated physical and mental healthcare, where clinicians strive to understand health and wellbeing of their patients across all clinical domains and across the Veteran's entire life, to include during times of service and as Veterans, whether they receive care from VA, Department of Defense (DoD) or community care providers.

Because of the demographics of the Veteran population – living in locations from densely urban to sparsely populated – VA must also enable its clinicians to communicate with, treat and support their patients using the most advanced technologies available. To support this mission, VA is assessing available technologies to replace its current electronic health record (EHR) system with a more modern, adaptable technology that can leverage the innovations made in the commercial market to support the whole healthcare of Veterans across the country.

Currently, VHA's EHR runs on the Veterans Information Systems and Technology Architecture (VistA), a platform that was originally developed as a home-grown system more than 30 years ago to support clinical care delivery (with other management functions added over time) and still managed by VA today. At its inception, VistA was a revolutionary concept in healthcare management and served as an industry catalyst in the development of commercial EHR vendors such as Cerner and Epic. Over the years, VistA has proven to be a durable platform for automating both clinical and operational processes and workflows. In fact, VA currently uses VistA to handle supply chain, security, inventory management and a number of other operational activities, in addition to clinical operations such as order entry and pharmacy.

VistA has worked for VA for many decades and has leveraged new technologies such as Bar Code Medication Administration (BCMA) and management support capabilities such as supply chain, inventory management and human resources. Several factors, however, have led VA to question whether continuing with VistA is the best path forward. This is especially true now that more agile and technologically advanced EHR platforms are readily available in the commercial sector that can serve as the launching pad for delivering functionalities (e.g., clinicians reviewing and editing Veteran records and images remotely, Veterans scheduling appointments using mobile devices) that have already become common in the commercial market while adopting new innovations (e.g., provide virtual health including video communication and vitals assessment).

These factors include:

- Technology:** The level of complexity in VistA has increased over the years due to several factors, including the development of VistA into multiple instances as each facility changed its code. In addition, limited enhancements delivered in recent years have led to several sub-modules of VistA lagging behind its commercial off-the-shelf (COTS) counterparts in functionality (e.g., lab, radiology, scheduling). While VA has been a leader in developing and deploying telehealth capabilities, it has fallen behind commercial products in integrating these capabilities within VistA. Additionally, the financial, administrative and other support modules in VistA have lost ground relative to COTS products and do not provide the expected level of service and capability in features such as dynamic/on-demand scheduling, population health and patient engagement. In many ways, industry innovation in EHR technology has leapfrogged VA. This sentiment was echoed by VHA field leadership where three out of five respondents surveyed agreed to the clinicians' desire to have advanced capabilities where the EHR could self-populate the Veteran's information from multiple sources and provide them with salient points and lead them through the visit with minimal keying of data into the system.
- “We have been leaders in integrated electronic health records, big-data analytic capabilities, and comprehensive care, including provision of support for team-based primary care, integration of behavioral health services, attention to social determinants of health, and caregiver involvement. – Dr. David Shulkin, 2016⁵⁴”*
- Complexity:** While clinicians expressed appreciation for the ability to customize VistA to meet their local needs, more than three out of five VHA clinicians and leadership surveyed felt that VistA and its clinical packages were not as user friendly as they could be. They said that “there are too many clicks necessary to get where you need to go, and too many screens to navigate.” Local customization and work arounds have increased the level of complexity and made the integration of new capabilities across the enterprise even more challenging. The downstream impact of high variability and complexity without a universal data model and integrated data management is that data is recorded in different ways across different and often incompatible systems leading to clinician frustration and potential adverse Veteran experiences, such as continuing to send appointment reminder notifications to a Veteran's widow even after the Veteran's death. Lack of standardization can also cause clinical practice variation and may impede organizational ability to pursue emerging models of care and to perform population health analytics.
 - Interoperability:** VistA is deployed throughout VA in a decentralized manner, with 130 instances hosted at VA data centers throughout the country. Coordination and communication among the individual instances of VistA can be a challenge. In addition, with more and more Veterans relying on both VA and community care providers, seven out of ten VISN directors and VHA leadership surveyed felt that information coming from outside providers need to be a part of the record to provide high quality and integrated care. Therefore, to deliver on VHA's mission, VA needs to adopt a platform that can promote and support seamless interoperability of Veteran's health record within the enterprise, with DoD and across organizations in the community. Interoperability and data sharing across disparate systems is an area of growing focus within the health care community and VA with its sheer size and scale can potentially be the catalyst to drive change.

- *Cost:* Recent studies suggest that VA Office of Information and Technology (OI&T) spends as much as 85 percent (\$3.6B) of its annual budget on infrastructure operations and maintenance. That leaves only 15 percent to spend on enhancements and innovations for all VA systems. This level of continued cost to maintain and upgrade VA's IT infrastructure is unsustainable for VA if it plans to modernize its technology footprint and support its clinicians in delivering quality care to its Veterans.

For these reasons, VA leadership is evaluating strategic options that include commercial solutions for its EHR. In support of VA's decision making process, Grant Thornton conducted this strategic analysis to support Secretary of Veterans Affairs Dr. David Shulkin's decision, focusing on VA's future clinical and IT strategies and current and future market trends VA should consider when making a decision.

2.1 Objective

Secretary Shulkin announced in January 2017 that he would make a decision regarding the future of VA's EHR platform in July 2017.³ VA directed Grant Thornton to conduct an independent assessment of four strategic options for modernizing its EHR, with a focus on technological aspects of the implementation. The four strategic options are as follows:

- *Option 1- Commercial off-the-shelf (COTS) EHR:* VA selects and implements a COTS EHR product and uses it for clinical and revenue cycle functionality. Although not all needs may be met by a single vendor, VA has the option to purchase additional COTS functionality and incorporate/integrate it with the primary COTS solution. The COTS EHR product will be hosted within a VA-purchased and operated, federally-certified, secure cloud environment (e.g., Amazon Web Services, Microsoft Azure).
- *Option 2 - COTS EHR combined with the Joint Legacy Viewer (JLV) and electronic Health Management Platform (eHMP):* This option is similar to *Option 1: COTS* plus VA retains the JLV and eHMP, both Vista packages, to develop and implement additional capabilities to fill gaps in COTS EHR capabilities. The COTS EHR product will be hosted within a VA-purchased, federally-certified, secure cloud environment.
- *Option 3 - Vista commercialization:* VA transfers Vista to a third-party vendor, and after modernization by the vendor, VA purchases licenses to use Vista as Software as a Service (SaaS). VA will receive considerations for pricing such as reduced licensing and implementation costs in exchange for Vista intellectual property rights. VA may also negotiate other terms such as directed development of new functionality to meet VA's specific requirements. In the SaaS arrangement, the vendor provides the software on a subscription basis and is responsible for hosting the software in a federally-certified, secure cloud environment.
- *Option 4 - COTS EHR provided as SaaS:* This option is similar to *Option 1: COTS*; however, in this option, the COTS EHR product is hosted and fully supported and managed by the vendor. In the SaaS arrangement, the vendor provides the software on a subscription basis and is responsible for hosting the software in a federally-certified, secure cloud environment.

This paper provides a high-level assessment of the four strategic options introduced above and the associated costs for implementing each option. The paper does not provide a recommendation on EHR vendors, but instead, shares insights captured from VA clinicians, leadership and staff regarding their needs or priorities and how they map to the capabilities offered by each strategic option. To ensure long-term success, the paper also provides key considerations around assessing and upgrading VA's technology infrastructure and hardware so that they may be able to support the strategy and solution preferred by VA.

2.2 Guiding Principles

Selecting an EHR is not just a technology decision; it is an organizational decision. Both the EHR selection process and ensuing implementation will be profoundly transformative. The guiding principles are intended to be enduring and will drive strategic evaluations regarding IT and change management.

Technology and change management decisions must be balanced relative to business and clinical, operational, and architecture and engineering principles. Doing so will maximize the business value of IT as it relates to EHR, mitigate programmatic and technical risks, smooth change integration, enhance systems and data quality, and ensure predictability and transparency in outcomes. These principles are factored into the assessment.

2.2.1 Business and Clinical Principles

- Patient safety and quality care are not compromised during EHR transition.
- A modernized EHR supports Veteran-centered, quality-driven, data-driven, evidence-based and team-based care.
- Clinical priorities drive EHR functional needs. IT trends and disruptive innovations can enable/inform EHR system functions. Requirements are driven by stakeholder principles (e.g., clinician, researcher, care team).
- EHR standardization is balanced with managed configurability.
- A modern EHR is flexible and can adapt to current and future healthcare and information technology trends.
- EHR information is integrated across care settings (e.g. outpatient, inpatient, operating room, emergency department, long-term care, mental health, and telehealth) and provides a longitudinal view of the Veteran's record.
- Decisions are optimized for VA and achieve economies of scale.
- Innovation and agility are non-negotiable.

2.2.2 Operational Principles

- Change management and standardization of clinical processes (including business process reengineering) and data are critical to the success of EHR modernization. EHR modernization must be minimally disruptive to hospital and clinic operations.
- VistA EHR legacy represents the baseline. Consequently, clinical excellence cannot regress as a result of IT changes during EHR modernization.
- VA leverages EHR lessons learned and leading practices from other large scale healthcare organizations (e.g., Kaiser Permanente, DoD and Mayo Clinic).

2.2.3 Architecture and Engineering Principles

- An EHR system should be architected from a system-of-systems perspective, optimizing systems quality (e.g., reliability, scalability, maintainability, usability, etc.).
- EHR systems should promote open architecture and standards so that clinical tools remain available to public and private sector providers.
- An EHR should incorporate standardized business processes and define standardized data and information models, taxonomy and terminologies.
- Data is an essential asset, so integrity and quality must always be sustained. There is zero tolerance for data loss during the transition to a modern EHR system.

- The EHR must be designed and implemented to provide seamless interoperability with DoD and community care providers, and encourage collaborative partnerships.

2.3 Analysis Framework and Approach

In evaluating the four strategic options, Grant Thornton leveraged our strategic evaluation framework for adoption of new enterprise technologies, which is comprised of Strategic Fit and Culture; Functionality and Technology; and Cost/Schedule and Viability (Figure 1 on next page).

- Strategic Fit and Culture contains the business drivers and needs for the technology. In this case, strategic fit and culture assesses the needs and desires of the end user clinicians, Veterans and other EHR users, to determine the right high-level expectations any solution must meet. These often include anything from specific technological options and features, to conformity to an organization's culture, mission and approach. We determined the appropriate strategic and cultural fit criteria through research and interviews with key stakeholders, as described below. Effectively, however, strategic fit and culture criteria focused on the clinical priorities of the organization.
- In Functionality and Technology, we assess the alignment of the solution with the organization's technology strategy and capabilities. Any decision regarding a significant technology investment must take the technological strategy into consideration. We determined the appropriate functionality and technology criteria through analysis of organizational strategy, interviews with stakeholders, Congressional testimony and other speaking engagements by VA leaders, and through review of published materials.
- Cost/Schedule and Viability is simply the assessment of each option's overall costs, any differentiation in schedule and the likelihood of successfully implementing each. We assessed these criteria by applying our experience and expertise supporting similar implementations across industry, and by researching similar implementations in government and commercial healthcare organizations.

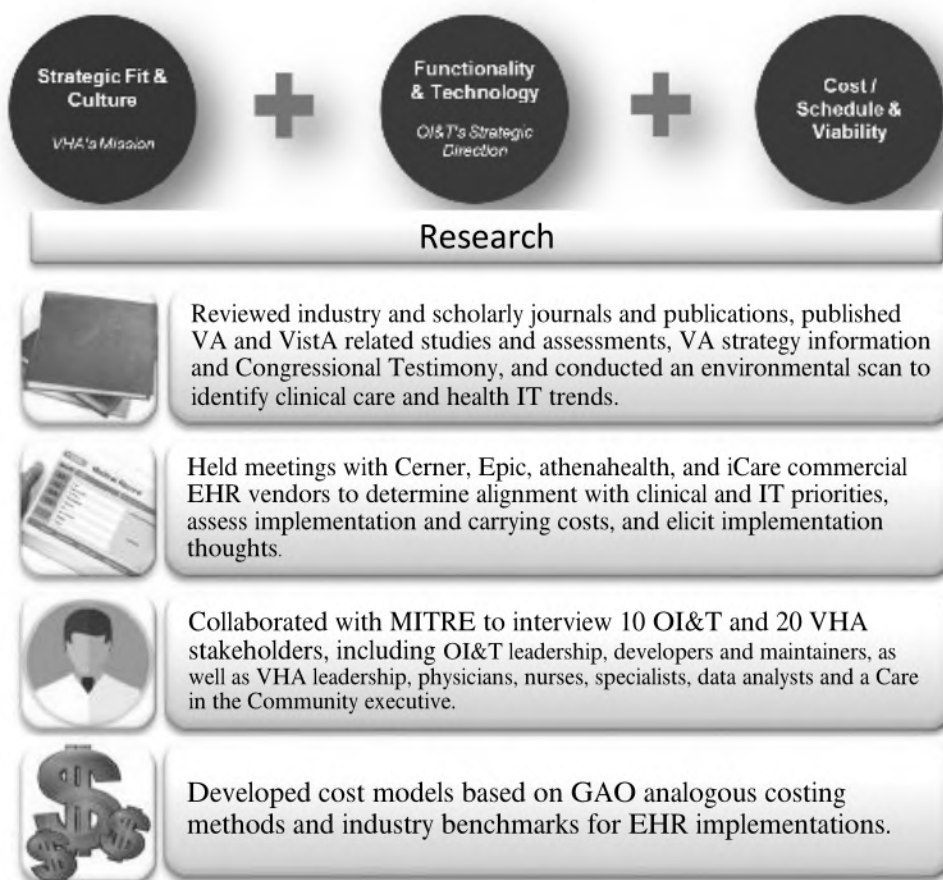
Grant Thornton interviewed key stakeholders across VHA and OI&T to determine the critical factors customers are seeking in a new EHR solution. Interviewees included:

- VHA and OI&T leadership
- Product development professionals with experience supporting VistA and the eHMP
- IT operations and maintenance staff, to understand how VistA is deployed and understand their recommendations for how VA can improve its sustainment footprint
- VHA clinicians and other EHR end users, including primary care, specialty care, allied health professionals, nurses, and revenue cycle staff

The results of the interviews are captured in Appendix B, but facts and findings derived from the interviews are outlined in the Strategic Fit and Culture, Functionality and Technology, and Cost/Schedule and Viability sections below.

Grant Thornton also conducted market research focused on identifying trends in healthcare delivery and health IT that would bear on the decision regarding EHR modernization. Market research included the study of industry publications and research, including Gartner and Forrester, medical journals, leading-edge technology development and the use and management of enterprise data. Market trends identified as impacting the EHR decision are discussed in Appendix C.

Figure 1. Research Framework



Finally, Grant Thornton met with leading EHR vendors to discuss their product offerings and assess fit with VA and OI&T's strategic priorities with respect to the EHR. We assessed products against these priorities, identifying those factors available in the commercial market and those factors that are not. We also discussed pricing methodologies and requested high-level cost estimates to align with our industry research on cost of adopting commercial EHR systems.

3.0 Findings

In order to modernize VA's EHR and enhance its ability to carry out the mission of supporting and providing healthcare for America's Veterans, VA has identified four potential options, each with its own series of benefits and risks, as well as unique cost profiles and trade-offs.

When assessing each of the options, the following should be considered:

- Gaps in specific vendor capability:** In assessing alignment with VA's clinical priorities, we determined that although all priorities are met in the commercial market as a whole, a single vendor may not be able to meet VA's specifications completely, depending on the vendor selected. For example, a single vendor may achieve 90 percent of the solution to VA's specifications, but the other 10 percent is available through other vendors.

- This increases the importance of the VDP should options 1 or 4 be selected. Through the VDP, VA could integrate best-in-class offerings to fill gaps of a single vendor. In essence, the best-of-breed COTS solution must support the multitude of VA care settings and stakeholders.
- Alternatively, in preparing the solicitation, VA could list out all specifications and place the burden on the bidder to fill gaps, ensuring a complete solution. An integrator would then be responsible for combining all necessary capabilities into a comprehensive EHR solution.
- *Interoperability and care in the community and interoperability:* In assessing interoperability, there is great focus on the interoperability between DoD and VA. However, in interviews and in assessing the care continuum for military members as they serve and transition to Veteran status, the interoperability with DoD is critical at the transition stage, but no more important thereafter than interoperability with community care providers. Therefore, interoperability with DoD alone should not drive the decision regarding the option, or the eventual vendor solution.
- *Buy-first rather than buy-only:* In assessing the options and alignment with IT priorities, it is important to note that the “buy-first” strategy is not a “buy-only” strategy. VA has specific needs that others in the market do not, therefore there is the potential that commercial products may not meet all of VA’s needs. This is especially true when considering other management information systems, but may apply to the EHR as well. During interviews, VA staff expressed concern that commercial vendors do not have some of the capability that exists now in VistA; however, the analysis showed that these assumptions are inaccurate and that many of the requested capabilities are in fact available in commercial EHR solutions. Additionally, in many cases, a solution that achieves a vast majority of VA’s desires is more cost-effective than building a system from scratch.

3.1 Strategic and Cultural Fit

This section provides detailed descriptions around the clinical priorities that emerged as important to VA that align with their strategy and culture. They address five areas: unique features, workflow, team based care and mental health. Upon completing our interviews with VHA staff members and leaders, we asked a group of executive leaders from around the country to rank the identified clinical priorities. The two priorities that were most highly rated were having a single view of Veteran data, and support of team-based care.

[VHA’s vision is to] continue to be the benchmark of excellence and value in healthcare and benefits by providing exemplary services that are both patient-centered and evidence based. This care will be delivered by engaged, collaborative teams in an integrated environment that supports learning, discovery, and continuous improvement. It will emphasize prevention and population health and contribute to the Nation’s well-being through education, research, and service in national emergencies.⁵³

- *Features unique to VA:* VA has several aspects of their care delivery and patient population that are different than in the non-Veteran healthcare delivery market. These include factors such as:
 - Complex eligibility standards and requirements that exist for Veterans to receive VA healthcare, which impact revenue cycle operations (e.g. inability to bill third parties for service-connected care).
 - Disproportionate disease prevalence in the Veteran population for certain conditions such as amputations, traumatic brain injury, post-traumatic stress disorder (PTSD) and specific

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- environmental exposures (e.g. Agent Orange), which require the ability to establish and analyze patient cohorts not typically used in the commercial sector.
 - Broad and increasing emphasis on interaction with community care providers that underscores the need for more sophisticated interoperability and better methods of communication between VA clinicians and non-VA providers.
 - A disproportionately high rural population, with 5.2 million Veterans who constitute more than 30 percent of VA's caseload, which requires sophisticated remote capabilities.
 - A whole health focus that integrates management of psychological, social and physical health.
- **Workflow:** Workflow includes the sequencing of activities a clinician will use to treat a patient; it is adaptable to the specific conditions of the patient but standardized across the enterprise. Specific workflow considerations include:
 - *Longitudinal view of the patient record:* For the purpose of this analysis, VHA clinicians described the longitudinal view of the patient record as the ability to review medical information from community and DoD providers within the Veteran's record in one place, rather than needing to access multiple systems for information. Having a single source for all Veteran records is important so that clinicians can provide high quality care based on timely, accurate information and can also prevent medical errors and reduce waste resulting from duplicate laboratory tests or imaging.⁴⁻⁶ Veterans' care is unique in that they transition from their military service to Veteran status, and their setting of care also changes from DoD to VA and community care providers. A longitudinal view for each patient in an EHR should include current and previous patient demographics, progress notes, problems and medications, as well as vital signs, past medical history, immunizations, laboratory data and radiology reports.
 - *Improved telehealth, mobile and web-based tools:* Due to the geographic dispersion of Veterans across the country, many of whom live in rural areas, VA often employs alternate methods of care delivery. VA Telehealth Services uses both synchronous (e.g. real-time videoconferencing between patients and a care team, remote medical device monitoring) and asynchronous (e.g. acquisition of and transmission of medical data for later review by providers, patient video education modules) communication to supplement face-to-face appointments and make receiving care more convenient for Veterans.^{7,8} These initiatives have improved Veteran satisfaction by reducing travel and wait times.^{8,9} In addition, providers endorse improved access, care coordination, and quality of care.⁹
 - *Scheduling:* Making it easier to schedule appointments, both face-to-face and via telehealth services will improve efficiency and experience for both clinicians and Veterans.
- **Team-based care/PACT:** There is increasing recognition of the value of team-based care to patients and providers, both in the primary care domain and for treatment of complex medical conditions.^{10,11} The patient-centered medical home (PCMH) is one way in which team-based care is delivered, and VA has implemented this through the development of PACT. Implementation of a modern EHR can support PACT through the ability to manage relevant personal health information, allow communication among providers, patients, and care teams, analyze and report on individual and cohort outcomes and quality of care, support providers' clinical decision making, and help patients self-manage their health and medical conditions while collaborating with providers.
- **Analytics and research:** VA stakeholders all stressed the importance of analytics in delivering care. As defined through our interviews, VA clinicians are concerned with two primary types of analytics: real-time clinical decision support tools, powered by analytics, to support the clinician at the point of care; and retrospective analytics, which can support better management of the organization and its workforce, as well as improve care delivery through identification of trends that point to better

























outcomes through different care approaches. The modern EHR should support both of these capabilities, by providing point-of-care analytics in a manner convenient to the provider, as well as the ability to conduct statistical and other analytics on the vast amount of data VA generates.

- **Mental health:** Mental health is one of Secretary Shulkin's top priorities; there is a long history of programs and interventions to support Veterans, who are at higher risk for mental health conditions in general, and specifically suffer from higher incidence of PTSD and suicide. VA has long had a well-integrated mental health program that considers the care of the Veteran holistically and is provided in concert with other care that the patient receives from VA. New technologies have the potential to improve risk stratification and tracking of Veterans to support their mental health, especially through vulnerable periods like the transition from active duty to Veteran life. VA stakeholders also described the need for specific options within the EHR to support documentation of mental health appointments, findings and diagnoses that are not available in VistA.

3.2 Summary of Alignment with Strategic and Cultural Fit

After interviews and demonstrations by multiple commercial EHR vendors, Grant Thornton assessed each option with respect to these priorities. There are COTS products that have features addressing all the priorities endorsed by VHA, to include the single view of data and support for team-based care, thus Options 1, 2, and 4 fully align since they all include a COTS product. For *Option 3: Commercialized VistA*, an appropriate vendor contract must ensure alignment with all priorities.

Figure 2. Option Alignment with Clinical Priorities

Clinical Priorities	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercialized VistA	Option 4: COTS SaaS
Addresses features unique to VA				
Workflow				
Team-based care				
Analytics and research				
Mental health				
Interoperability with DoD and community providers				

 Complete
  Partial
 Limited
  Not Aligned

3.3 Functionality and Technology

The second part of our evaluation framework is the functionality and technology associated with the different options. For several years, OI&T has focused on maintaining a significant number of legacy IT systems, including VistA. VA also developed customized software to meet the business needs of its customers, currently spending 85 percent of the IT budget on maintaining physical and application infrastructure. The high percentage of spend reflects both inefficiency in the system and

a level of need that outpaces VA's budget authority. Recently, OI&T began a transformation to decrease the demand for legacy systems and decrease inefficient IT management; and, is now focused on the following key objectives.





















- Single-view of the Veteran and data management:* Data management is critical for providing reliable and actionable data. Within industry, this entails the establishment and systems-based enforcement of holistic data governance models and data standards between and within systems to ensure that critical information is readily available, accurate, and actionable. Within VA, this means that a valid solution will ensure that critical health information is uniquely linked to the Veteran and centrally available at critical decision points. For VA to realize its goal of a single view of the Veteran's record, VA data must be stored within a standardized data model to facilitate the reliability and interoperability of the data between VA, DoD other Federal partners and community providers to provide a longitudinal view of the Veteran and to facilitate continuity of care.
- Strategic sourcing:* Strategic sourcing is an industry and government standard practice of leveraging the combined buying power of large institutions toward a single vendor in order to gain more favorable procurement agreements. While VA has been successful in using its size and buying power to greatly reduce the cost of pharmaceuticals, for example, it has not historically leveraged this capability in the IT arena. VA's strategic sourcing effort is also focused on using VA's size in the market to incent vendors to develop capabilities and technologies that will benefit the healthcare delivery market as a whole.
- Buy-first approach:* Application development is a resource-intensive process and requires tremendous effort to deliver a complete and viable solution. As such, it is only strategically advantageous to pursue this activity when it provides a tangible benefit to VA beyond what is readily available in the commercial space. For VA, this approach requires a transition away from in-house application development and towards sourcing and implementing commercially standardized, supported and maintained applications. Adopting a buy-first approach with respect to EHR applications will enable VA to leverage commercial experience and resources in caring for Veterans.
- Reduced IT footprint:* OI&T currently spends 85 percent of its annual budget on maintaining its diverse IT footprint resulting in high opportunity costs for resources that could be applied elsewhere to advance VA's central mission. To effectively execute the strategy, VA is considering using commercial operational resources and Software/Platform as a Service (SaaS/PaaS) options, such as cloud computing, distributed and on-demand infrastructure, and support options. VA must consider scalability, support and hosting options and network and bandwidth requirements when evaluating EHR options and ensure that the options are able to operate effectively with and within distributed computing, platform and network environments.
- Cloud-based:* An emerging trend within the U.S. healthcare industry is the application of cloud-based (i.e. distributed computing) environments to address the myriad infrastructure issues and shifting requirements faced by the demands of the modern healthcare environment. The application of cloud-based computing allows the supporting infrastructure of EHR systems to scale up or down to





The road ahead is clear, as the VA transforms itself to address future requirements. We need to strengthen our business processes so as to support clinical excellence and accelerate operational improvements to better serve veterans. By rethinking our systems, working with our current partners, and exploring new public-private partnerships, the VA is transitioning from a loose federation of regional systems to a highly integrated enterprise. – Dr. David Shulkin, 2016⁵⁴

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fit the size of the organizational need. For large distributed institutions such as VA, this provides a number of tangible benefits, cost savings and strategic options that are not available with traditional, on-premises environments, such as scalability, drastically reduced hardware costs, maintenance efficiencies and the ability to leverage the large, robust commercial networks that span the country. Currently, VA operates its EHR solution within a series of VA-owned and maintained data centers. This architecture requires a large number of resources to be dedicated solely to infrastructure support. However, by transitioning VA's EHR infrastructure to the cloud, VA could potentially realize substantial resource savings and redirect those resources toward other, more Veteran-focused initiatives. In evaluating its future EHR options, VA will want to consider solutions can fully operate within the modern, cloud-based computing environments.

Figure 3. Alignment to Strategic Evaluation Criteria

Evaluation Criteria	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercialized Vista	Option 4: COTS SaaS
Single-view of the Veteran and data management				
Strategic sourcing				
Buy-first approach				
Reduced IT footprint				
Cloud-based				

 Complete
  Partial
 Limited
  Not Aligned

As illustrated in Figure 3, Options 1, 3, and 4 fully align with VA's IT strategic direction. *Option 2: COTS + eHMP* partially aligns because it relies on internal VA development to support and advance the eHMP, which does not align with the strategic sourcing and buy-first.

In addition to VA's IT strategy, we identified technical evaluation criteria to assess VA's current capabilities to support the options under consideration. The technical evaluation criteria are:

- *Network resource requirements*: Network resources are required by any solution that requires any machine, service, process or facility to connect to another. In broad terms, network resources affect the speed and responsiveness of activities within both the EHR interface and between the EHR environment and ancillary systems. Every solution will require a certain level of network resources in order to operate, however, the specific limiting resources can be drastically different between the options and this evaluation will focus on the bandwidth, connectivity, latency mitigation and topological layout of each considered solution.
- *Adaptability "future proofing"*: Adaptability is the capacity of a solution to be flexible enough in terms of allowed clinical processes and workflows and underlying and integrated technologies to meet VA's immediate needs while providing a stable and robust platform to support the new care models and technologies. While all enterprise class EHRs will be configurable to address the immediate needs of VA, certain architectures will be more accessible and adaptable in terms of data and processes, which

















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will allow VA greater ability and a lower barrier to mold a given solution to changes in the clinical landscape.

- **Scalability:** Simply put, scalability is the ability of a solution to efficiently scale to an organization the size of VA. Scalability takes into account not only the approach and architecture needed to scale a solution, but the level of complexity in both required systems and processes necessary to achieve this. Additionally, this takes into account the complexity of migrating workflow and processes between sites as well as the ease of expanding or contracting solution instances.
- **Redundancy:** In order for VA to continue to operate and provide critical services to Veterans, any EHR system must be adept at effectively providing needed information to doctors, nurses and other clinical staff at all times while still providing a “single view” of the Veteran. Additionally, it must provide methodology to ensure that records are not lost or corrupted, that no or minimal single points of failure exist within the network, and address concurrency issues arising from interruptions in end-to-end network coverage across the VA system.

Figure 4 illustrates each solution's degree of alignment with the above technical evaluation criteria. As templated, all solutions fulfill the intentions of these criteria to a certain extent, however *Option 2: COTS + eHMP* has minor abrogation relative to the other solutions.

Figure 4. Alignment to Technical Evaluation Criteria

Evaluation Criteria	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercialized VistA	Option 4: COTS SaaS
Network resource requirements				
Adaptability				
Scalability				
Redundancy				

 Complete
  Limited
  Partial
  Not Aligned

Options 1 and 4 differ in adaptability due to differences in implementation model, namely SaaS (*Option 4: COTS SaaS*) to non-SaaS, where VA's ability to modify their solution is attenuated by the constraints of the SaaS implementation. Under a SaaS option, VA would not have direct access to the database backend and thus would be slightly limited in the capability to directly interface with the data and thus to conduct operations on said data without going through an intermediary approved by the SaaS provider.

Option 2: COTS + eHMP allows for a high degree of adaptability due to its utilization of the eHMP project which allows VA to directly drive the future capability of eHMP and thus the solution itself. However, this capability is realized through the implementation of additional software on-top on the COTS EHR resulting in increased network demands and increasing the effort necessary to scale and establish redundancy analogous to an infrastructure supporting a COTS system without the addition of the eHMP's needs.

3.4 Benefits

The adoption of an enterprise-wide, standardized commercial EHR product, supported by a vendor with an established track record and well-integrated modules may improve the perception of VA and underscore the organization's commitment to providing high quality care to Veterans in the 21st century.

Figure 5. Benefits of Options

Benefits Category	Evaluation Criteria	Option 1: COTS	Option 2: COTS+ eHMP/JLV	Option 3: VistA Comm.	Option 4: COTS SaaS
Defined product roadmap	<ul style="list-style-type: none"> Clear vision for software evolution Ability to keep pace with market demands, trends and innovations 	HIGH	MEDIUM	LOW	HIGH
Access to and ownership of data	<ul style="list-style-type: none"> VA has direct administrative and/or system authority 	HIGH	HIGH	LOW	LOW
				HIGH	HIGH
Ability to customize EHR product	<ul style="list-style-type: none"> VA has the ability to direct product development 	MEDIUM	HIGH	HIGH	LOW

- Defined product roadmap:** Established COTS vendors are expected to have a long term vision for their product growth strategy that can help them stay on top. Options 1, 2 and 4 offer VA such an opportunity to partner with leading COTS vendors who may be able to quickly modernize VA's care delivery process and help the agency realize its mission of Veteran-centric care. However, that *Option 2: COTS + eHMP* is rated slightly lower than Options 1 and 4 because within *Option 2: COTS + eHMP*, the eHMP package is still in its early stages of deployment as it has not yet been scaled to the enterprise level or designed to integrate with non-VistA EHR's. Similarly, *Option 3: Commercialized VistA* is also rated lower on the defined product roadmap benefit scale compared to the other options because in this scenario, the vendor is expected to design and build a custom EHR tailored for VA.
- Access to and ownership of data:** *Option 1: COTS* and *Option 2: COTS + eHMP* include implementation on a VA-managed, federally-certified, secure cloud environment. While VA will not own the actual servers or data centers, they will directly manage the cloud environment and database engines supporting the EHR, and would have direct access to the live data stored within the EHR. Therefore, direct access and control to the live data and the ability to use it with any third-party solutions desired without outside vendor involvement are the primary reasons for rating Options 1 and 2 higher than Options 3 and 4. However, VA can mitigate the concern for access to the data for Options 3 and 4 by ensuring appropriate language is included in the contract for the EHR that guarantees VA's right to access the data for any reason, and to allow VA to connect any third party software VA chooses directly to the SaaS environment and solution, regardless of other agreements the COTS SaaS vendor has made. This agreement would likely have cost implications that could not be estimated, as this type of arrangement is atypical.

- *Ability to customize EHR product:* While VA may not be able to customize a COTS product at the facility level because of its size and scale, VA has the ability to influence the vendor's product development at different degrees. However, Options 2 and 3 provide greater flexibility for VA to customize the solution. For instance, *Option 2: COTS + eHMP* leaves open the possibility for VA to develop capabilities on its own through the eHMP, while *Option 3: Commercialized VistA* provides VA the option to direct or otherwise have a significant voice in the future development of the solution. Comparatively, *Option 4: COTS SaaS* rates the lowest in terms of customizability because of its SaaS arrangement.

Each option provides benefits to one extent or another. In applying the benefits to a decision regarding the modernization of the EHR, VA leadership can determine which benefits are more important to VA going forward, and then assess the benefits against the other factors assessed in this paper.

3.5 Risks

There are always risks associated with any large enterprise-wide system implementation. The figure below highlights key risks VA leadership must be aware of when selecting the best strategic option for EHR implementation. The risks were identified and analyzed based on VHA and OI&T stakeholder interviews, COTS vendor interviews and demonstrations, industry research and Grant Thornton experience conducting EHR implementations.

Figure 6. Risks of Options

Risk Category	Evaluation Criteria	Option 1: COTS	Option 2: COTS+ eHMP	Option 3: VistA Comm.	Option 4: COTS SaaS
Transitioning to a cloud environment	<ul style="list-style-type: none"> • Experience with cloud • Resource skillset 	HIGH	HIGH	HIGH	MEDIUM
Backup and disaster recovery management (DRM)	<ul style="list-style-type: none"> • Infrastructure reliability • Redundancy protocols in place 	HIGH	HIGH	LOW	LOW
Integration of third-party COTS applications	<ul style="list-style-type: none"> • COTS capabilities can address VHA's needs (e.g., population health, decision support, mental health, user-friendly, secure messaging) 	LOW	LOW	MEDIUM	MEDIUM
Loss of control over future EHR capabilities development*	<ul style="list-style-type: none"> • VA's level of autonomy and control over its future EHR solution 	HIGH MEDIUM	MEDIUM	LOW	HIGH MEDIUM
Demand on network infrastructure	<ul style="list-style-type: none"> • Relative bandwidth requirement at the VAMC and satellite facilities 	MEDIUM	HIGH	MEDIUM	MEDIUM
Required additional development	<ul style="list-style-type: none"> • Maturity of software and its capabilities 	LOW	HIGH	HIGH	LOW

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Disruption to workflow during implementation	• Clinical workflows and business processes will be redesigned	HIGH	HIGH	HIGH	HIGH
Availability of Vendors	• The known availability of vendors in the market that can support the option.	LOW	LOW	HIGH	LOW

*Traditionally, this risk is high as commercial vendors control the product roadmap. VA however could reduce this risk by contractually requiring some control over the direction the vendor takes with the product.

- *Transitioning to cloud environment:* VA has 35 years of experience developing and managing their own data centers and other on-premises installations of VistA and supporting software. However, transitioning to a cloud environment requires different skill sets and competencies. The skill gap and lack of experience with cloud management poses risk, as existing experienced system administrators and managers would have to undergo retraining or new system administrators would need to be hired. Hiring new administrators would require training in VA processes and operations. This risk is common to both Options 1 and 2, as both of these options have the COTS EHR hosted within a VA-purchased, federally-certified, secure cloud environment where VA's OI&T resources are responsible for managing and administering the data and the hardware setup within the cloud environment. Option 3: Commercialized VistA is also high risk because without a defined partner, VA does not yet know whether the eventual partner will be conversant in cloud deployment. Finally, *Option 4: COTS SaaS* is less risky to VA because the vendor is already operating a SaaS environment for other clients. There is some risk due to scaling to VA's needs, but this is not as high as Options 1-3.
- *Backup and disaster recovery management (DRM):* As VA transitions to a cloud environment, backup systems and disaster recovery will need to be considered in new ways and existing back-up plans would need to be reevaluated. Migration to a commercial cloud provider – as in Options 3 and 4 – alleviates the hardware component of disaster recovery. However, VA would still bear responsibility for ensuring that failover and redundancy protocols work seamlessly to minimize disruption to clinical workflow and have zero impact to patient safety. The management and planning of these activities is a significant undertaking given the size and complexity of VA.
- *Integration of non-COTS EHR applications:* Unlike Options 3 and 4, VA would own the COTS solution in Options 1 and 2. Therefore, by leveraging the VA Digital Platform strategy in Options 1 and 2, VA can potentially connect with any non-COTS EHR application in the market to achieve its desired goals. However this advantage would be significantly reduced in Options 3 and 4 where VA has limited direct control of the software due to potential contractual restrictions and SaaS implementation.
- *Loss of control over future EHR capabilities development:* While the adoption of a COTS EHR solution allows VA to keep pace with industry leaders in health care information technology, VA may still encounter limitations with a COTS solution because a COTS vendor may be either unwilling or incapable of providing VA-requested, non-standard enhancements and functionality post go-live. Options 1 and 4 are considered high risk for this reason, but the risk could be lowered should VA ensure contract language allows them to direct the development of future capabilities. We therefore assessed the options as either high or low, dependent on VA's ability to negotiate such development control. *Option 2: COTS + eHMP* is less risky because VA would be able to adapt eHMP in the future to accommodate new technologies it can develop. Finally, *Option 3: Commercialized VistA* is low risk

because VA would negotiate some control over future development and incorporation of new technologies.

- *Demand on network infrastructure: Option 2: COTS + eHMP* may have greater bandwidth requirements at VAMC and satellite facilities than Options 1, 3, and 4 as the network will have to accommodate traffic from both the EHR and the eHMP applications; this could be burdensome in areas where bandwidth is limited.
- *Required additional development:* While the ability to direct development is a benefit, an associated risk is that of taking on additional development. Options 2 and 3 by design require further development and customization. For instance, the eHMP software was designed specifically for VistA and therefore the software in its current version (2.0) will require code level redesign to seamlessly integrate with a COTS product. Likewise, the commercialized VistA in *Option 3: Commercialized VistA* also requires code level upgrades so that it can address both the unique requirements of VA along with the modernized features found in standard COTS products. Thus, Options 2 and 3 share a much higher risk compared to Options 1 and 4 that do not require code level updates.
- *Disruption to workflow during implementation:* All four options carry significant risk in disruption to existing workflow. This is inherent in a change to any new solution. VA will manage the risk through significant investment in change management, training, and hands-on support during and immediately after implementation.
- *Availability of Vendors:* Options 1, 2 and 4 are all low risk due to the availability of several vendors in the market to support the option (either through the COTS solutions or through continued development of eHMP). *Option 3: Commercialized VistA* however, is high risk. In assessing several the type of partner VA needs to make *Option 3: Commercialized VistA* successful, there may be few, if any, vendors in the market willing to support this option. Because of the criticality of finding a viable partner for this option – success is completely contingent on it – *Option 3: Commercialized VistA* should be viewed as an overall high risk.

As with benefits, the options hold differentiated risk as compared with one another. The critical factors in deciding on a modernization approach is determining the level of risk appetite the organization has, and which types of risk are more acceptable. These risks can then be balanced against alignment with strategy, benefits and costs.

3.6 Summary of Non-Cost Assessment

As noted in the Executive Summary, the combination of alignment with clinical and IT priorities, benefits and risks, provide the best opportunity to assess the options against one another. VA leadership, upon determining the relative importance of these factors, can use the analysis in Figure 7 below, to support the decision:

Figure 7. Decision Criteria applied to each Option

Decision Factor	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercialized VistA	Option 4: COTS SaaS
Time to Initial Operating Capability (IOC)	<ul style="list-style-type: none"> • Out-of-the-box functionalities fulfilling >80% of VA's needs • Estimate 18-24 months to IOC ~ 	<ul style="list-style-type: none"> • Out-of-the-box functionalities fulfilling >80% of VA's needs • Additional time to re-design and scale eHMP to COTS solution 	<ul style="list-style-type: none"> • Requires modernizing a single instance of VistA software prior to implementing, which will add at minimum an additional 12 months 	<ul style="list-style-type: none"> • Out-of-the-box functionalities fulfilling >80% of VA's needs • Estimate 18-24 months to IOC ~ Pilot Site post acquisition

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Decision Factor	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercialized VistA	Option 4: COTS SaaS
	Pilot Site post acquisition	<ul style="list-style-type: none"> Estimate 18-24 months to IOC ~ Pilot Site post acquisition 	<ul style="list-style-type: none"> Estimate 24-36 months to IOC ~ Pilot Site post acquisition 	
Interoperability with other health systems	<ul style="list-style-type: none"> All top tier COTS vendors meet multiple interoperability standards (e.g., FHIR) to create longitudinal record 	<ul style="list-style-type: none"> Same as Option 1: COTS. Also, JLV provides a static view of external records, but does not create the longitudinal record eHMP to provide longitudinal record 	<ul style="list-style-type: none"> Interoperability capability would have to be built into the commercialized VistA solution 	<ul style="list-style-type: none"> All top tier COTS vendors meet multiple interoperability standards (e.g., FHIR) to create longitudinal record
Flexibility	<ul style="list-style-type: none"> VA administered cloud increases VA flexibility to access 3rd party vendors (e.g., best in class population health) 	<ul style="list-style-type: none"> Same as Option 1 for COTS eHMP for new capabilities over time, dependent on development time, which may exceed market timeliness 	<ul style="list-style-type: none"> Vendor administered cloud decreases VA flexibility to access 3rd party vendors (e.g., best in class population health) because vendors may have pre-existing agreements. 	<ul style="list-style-type: none"> Vendor administered cloud decreases VA flexibility to access 3rd party vendors (e.g., best in class population health) because vendors may have pre-existing agreements.
Modernity	<ul style="list-style-type: none"> Industry leading software that regularly upgrades based on best practices and industry innovation Fully integrated solution with modern team based communications 	<ul style="list-style-type: none"> Same as Option 1 for COTS eHMP functionality would need to be de-conflicted of overlapping capability and then integrated with the COTS product. 	<ul style="list-style-type: none"> Vendor's commitment to continuous upgrade contingent on ability to sell the solution at other clients and make a profit VA may have to invest or enter into risk sharing arrangements if the vendor is not able to sell the solution to a critical mass to break even 	<ul style="list-style-type: none"> Same as Option 1: COTS
Tailorability	<ul style="list-style-type: none"> COTS out-of-the-box capabilities allow software configuration to meet end-user practice preference (e.g., physician note templates) Code level change (customization) incurs additional cost 	<ul style="list-style-type: none"> Same as Option 1: COTS eHMP adds capability to tailor because it is a VA developed and managed product 	<ul style="list-style-type: none"> Highest level of tailorability May require additional cost to purchase leading business and clinical workflows from 3rd party entities 	<ul style="list-style-type: none"> Same as Option 1: COTS, except code level change (customization) may not be possible because software may be shared by other clients of the COTS vendor (e.g., DoD)
IT Strategic Alignment	<ul style="list-style-type: none"> Aligns with all the strategic priorities except cloud is VA administered 	<ul style="list-style-type: none"> Does <u>not</u> align with the following strategic priorities: buy first, reduce IT footprint 	<ul style="list-style-type: none"> Aligns with all IT priorities 	<ul style="list-style-type: none"> Aligns with all IT priorities
Cost	<ul style="list-style-type: none"> Total = \$16.2B Includes \$184M for VA cloud hosting 	<ul style="list-style-type: none"> Total = \$18.7B Includes \$525M for eHMP cost 	<ul style="list-style-type: none"> Total = \$11.9B Assumes \$830M software costs absorbed by vendor 	<ul style="list-style-type: none"> \$16.0B VA does not incur hosting costs
Relative Risk	<ul style="list-style-type: none"> Medium risk since vendors implement their solutions in this manner routinely 	<ul style="list-style-type: none"> Higher risk due to continued reliance on internally developed software 	<ul style="list-style-type: none"> High risk due to limited partner viability or appetite 	<ul style="list-style-type: none"> Medium risk since vendors have SaaS models in place

4.0 Cost Assessment

Grant Thornton applied a three step approach to develop high-level cost estimates for each option under consideration:

- Applied the analogous costing methodology as defined by the Government Accountability Office (GAO) Cost Estimating and Assessment Guide¹²
- Met with EHR vendors, applied assumptions for software implementation in VA and requested non-attributable, rough order of magnitude (ROM) estimates from each
- Applied industry research and benchmarks for large-scale EHR and management information system implementations to identify and price various cost centers typical of these implementations

We provide a 15-year cost estimate for this analysis. The first ten years will be implementation years, as discussed in the timeline section below. The last five years provide an estimate for what VA may expect for annual software licensing and maintenance fees.

4.1 Analogous Cost Methodology

Grant Thornton used the analogous methodology for the following reasons:

- There are few data points available to consider in assessing cost for an EHR implementation in an organization the size of VA. Two analogous implementations include the DoD acquisition of Cerner and the Kaiser Permanente implementation of Epic. These were determined to be analogous due to the similar care delivery model, supporting a dedicated patient population through all care delivery. In addition, the total patient population for the three are similar.
- Since VA is in the early stages of planning the EHR modernization, specific business and technical requirements are not available to provide the basis of an engineering cost build-up.
- The timeframe available for analysis to support the cost estimate is relatively short for such a large and complex organization.
- At this stage in the decision, a ROM cost estimate is sufficient for the four options as the final solution costs will be highly dependent on the vendor chosen and could change during the vendor selection process as the vendor addresses VA's specific needs.

In assessing the DoD and Kaiser implementations, Grant Thornton determined that the total number of enrolled patients provided a reasonable benchmark in performing an analogous estimate. This assessment yielded the approximately \$10.6B 10-year estimate used in the VA Digital Platform (VDP) paper provided to VA in December 2016.¹³

4.2 Vendor Discussions

To further refine the estimate for this paper, Grant Thornton engaged commercial EHR vendors to provide ROM estimates for the cost of software implementation and ongoing maintenance for VA. Grant Thornton provided the vendors a list of general assumptions and conditions for the EHR implementation scenario stipulating length of implementation, modules included and type of system solution offering. Upon review of the vendor-provided ROMs, it became apparent that these estimates generally agreed with the estimate delivered in the VDP report.

4.3 Industry Research and Benchmarking

The analogous methodology and vendor quotes produces top-line price estimates (e.g., total cost of implementation). In order to break the top-line cost into appropriate cost centers, we applied a further cost allocation breakdown developed through a survey of industry leaders who recently went through an EHR implementation. The cost breakdown we developed is in Figure 8.

Figure 8. Cost Allocation of Software Based on Industry Survey

Cost Component	Cost Allocation
Software	28%
Vendor Team & Support	41%
IT Infrastructure HW & SW (Hosting)	6%
Systems Integration	3%
Application Support	11%
End user devices	2%
User training at Go-Live	8%
Other Project Cost	1%
Total	100%

Next, due to the size and complexity of VA, we determined that a prime integrator would be required to support preparation for and implementation of the EHR. We identified an appropriate benchmark presented at the Health Information Management Systems Society (HIMSS) and applied it to our model. As shown in Figure 9, the effort of a prime integrator relates to the software cost with a ratio of 1.83:1.

Figure 9. Prime Integrator Cost (HIMSS)

HIMSS Component	Percent Cost
Software	30%
Labor	55%
Quotient	1.83

The final industry benchmark consists of a cost scalar derived from data provided by EHR in Practice⁵⁵. Grant Thornton studied available data for both traditional and SaaS EHR implementations and based upon that data, derived a scalar which we applied to the COTS cost to determine the cost for SaaS implementation and post-go-live costs. The data showed that implementation costs for SaaS are approximately .79 those of a traditional implementation. However, ongoing licensing fees for the SaaS software and services is approximately two times the cost of the software in a traditional implementation.

4.4 Option-Specific Costs

Option 1: COTS – *Option 1: COTS* utilized the above methodology to determine the overall cost and breakdown to cost centers. We first rationalized multiple vendor quotes by breaking the quotes down against various cost types and then developed an average cost among all vendors. Next, we applied the benchmark cost allocations to determine appropriate costs for each cost center, and then added the prime integrator cost. Finally, we applied our implementation timeline and allocated the implementation phase costs across the ten year implementation phase, followed by five years of annual software costs.

Option 2: COTS + eHMP – This option carried the costs from *Option 1: COTS* since they both include implementation of a COTS EHR solution in a VA operated cloud environment. In order to cost the eHMP component of *Option 2: COTS + eHMP*, Grant Thornton utilized an internal VA estimate for the cost to deliver Version 2.0 of the eHMP to all users. This estimate was provided in a briefing to the Presidential Transition Team earlier this fiscal year. The estimate provided a one-time first-year cost of \$96.6M to scale the product for use by all interested users and \$30.6M for each year thereafter for 14 years for a total 15-year cost of \$525M.¹⁶ Note that this cost assumes no additional development activity.

Option 3: Commercialized VistA – *Option 3: Commercialized VistA* began with a similar costing methodology to *Option 1: COTS* above. We assessed the vendor quotes to determine an appropriate price for the implementation and post-implementation phases of the project and allocated the costs according to our benchmarks listed above. We then assessed the impact of the commercialization agreement. *Option 3: Commercialized VistA* entails an agreement between VA and a commercial partner. The partner would be responsible for upgrading the technology to meet all VA-identified clinical priorities, and to bring the technology up to industry standard. Because of the significant investment necessary to accomplish this goal, we assumed a trade-off arrangement between VA and the vendor. The vendor would make the initial investment to modernize the system. Since the vendor would then be able to market the product commercially, they have an interest in the modernization effort. VA also would benefit greatly, because they transition to a familiar product and ease the concerns of many employees who are invested in the VistA application. We therefore determined that the vendor would apply 50 percent of the cost to modernize the product to their VA agreement, while self-funding the other portion. We therefore added the VA portion of this modernization cost to the implementation phase of the cost model to account for the added cost of modernization.

Grant Thornton studied the VistA 4 Roadmap to determine the total cost to modernize VistA and meet VA's clinical priorities. Our full assessment is provided in Appendix D. As per above, 50 percent of that total was applied to the cost estimate for VA.

Option 4: COTS SaaS – To determine the cost of *Option 4: COTS SaaS*, we applied the industry benchmarked scalar model noted in the previous section to *Option 1: COTS* above. Note that per the scalar, while the implementation phase for *Option 4: COTS SaaS* is less costly, ongoing software costs are much higher. Therefore, although the 15 year model we present shows a lower cost for COTS SaaS, this option will become more expensive over its lifetime.

4.5 Estimated Implementation Timeline

We applied a 10-year implementation time frame as the basis for the cost estimate. We selected ten years due to the size and complexity of VA, allowing adequate planning and preparation time, as well as time for appropriate alpha and beta testing prior to full roll out. Our assumed timeline includes appropriate planning for the following:

- 12-18 months for preparation, planning and Project Management Office (PMO) stand-up for the implementation
- Beta test at one facility for the next 12-18 months to deploy the future Health IT/EHR in VA:
 - Capture clinical and business requirements and standardize workflows across the facility
 - Translate clinical data and design requirements to technical specifications required for build
 - Map standard reporting capabilities to clinical and operational requirements and develop custom reports as appropriate
 - Develop a robust testing methodology to including testing data flow across vendor and VA applications and outside in the community
 - Conduct integrated clinical use case testing, including regression and community connections
 - Conduct training of clinical and operational end users
 - Determine appropriate support for activation and deployment activities
- Alpha test for 12-24 months that includes expansion to other facilities in the beta site Veteran Integrated Service Network (VISN), and additional facilities in other VISNs to control for VISN variability
 - Confirm lessons learned based from the beta site on clinical adoption and interoperability with community providers utilizing Agile methodologies
 - Conduct user review and acceptance analysis of standardized clinical and business processes developed and implemented at the beta test site
 - Determine key drivers for the time duration would be deployment of standardized clinical workflow, training and testing
- Begin national rollout of the implementation phase.

Figure 10. Estimated Adoption Timeline



In order to show the annual maintenance cost for the modern EHR system, we then added five years to our estimate, so the total estimate provided is for 15 years, the first 10 of which is implementation.

4.6 VA Costs

VA will also incur internal costs to support the migration to a new, modern EHR. These include data migration costs, change management, and funding a PMO to act on VA's behalf (the PMO can either be staffed with internal VA resources, or through a contract).

To determine the cost of data migration, we analyzed a previous effort where VA was able to complete comprehensive data migration for 66 sites.¹⁴ We assumed a similar level of effort per

facility would be required to migrate the full 130 instances of VistA. We aligned the timeline for data migration with the implementation timeline from above to determine the total number of sites VA must migrate each year and the total cost of migration.

To cost the change management portion, we leveraged our technical knowledge against a body of industry experience, as well as change management costs illustrated in the eHMP 2.0 rollout program. Change management costs are approximately 25 percent of a total projects aggregate cost, therefore a factor of 25 percent was applied to the overall project cost to calculate the change management cost.

PMO costs were determined by leveraging Grant Thornton's industry experience as well as analysis of pertinent Office of Management and Budget (OMB) Form 300s and select research into other large scale ERP, EHR and information technology implementation projects to determine an appropriate benchmark. Our analysis indicates PMO costs are generally between 15-20 percent of the overall project costs. We assumed the high-end due to the inherent complexity of the scale of VA and a factor of 20 percent was applied to calculate to the PMO cost.

4.7 Complexity Factor

Finally, due to the early stage of decision-making at VA, many factors that impact overall cost are not well understood. These factors include:

- Specific business and clinical requirements, which may identify additional software or integration needs, which may increase overall cost.
- A readiness assessment, which we recommend below, may identify additional internal costs such as infrastructure improvements or increased change management costs.
- Additional development needs in eHMP or VistA modernization.

We therefore added a 20 percent complexity factor for *Option 2: COTS + eHMP* and *Option 3: Commercialized VistA* and a 15% complexity factor for *Option 1: COTS* and *Option 4: COTS SaaS* to account for unknown costs that are likely to arise over the planning period.

Figure 11 provides the detailed breakdown of costs, per our analysis.¹⁵ Appendix D provides full detail of the steps associated with developing each cost center, and the calculations performed.

Figure 11. 15-year Costs Associated with Four Options

Cost Center	Option #1: COTS	Option #2: COTS + JLV/eHMP	Option #3: Commercialized VistA	Option #4: COTS SaaS
Vendor Costs				
Software	\$1,179,240,741	\$1,179,240,741	\$194,372,093	\$931,600,185
Vendor Team & Support	\$1,726,745,370	\$1,726,745,370	\$284,616,279	\$1,364,128,843
IT Infrastructure HW & SW	\$252,694,444	\$252,694,444	\$41,651,163	\$199,628,611
Systems Integration	\$126,347,222	\$126,347,222	\$20,825,581	\$99,814,306
Application Support	\$463,273,148	\$463,273,148	\$76,360,465	\$365,985,787
End user devices	\$84,231,481	\$84,231,481	\$13,883,721	\$66,542,870
User training at Go-Live	\$336,925,926	\$336,925,926	\$55,534,884	\$266,171,481

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Other Project Cost	\$42,115,741	\$42,115,741	\$6,941,860	\$33,271,435
eHMP (<i>Option 2: COTS + eHMP only</i>)	\$0	\$525,000,000	\$0	\$0
VistA Modernization (<i>Option 3: Commercialized VistA only</i>)	\$0	\$0	\$813,340,000	\$0
Software Implementation Cost	\$4,211,574,074	\$4,736,574,074	\$1,507,526,047	\$3,327,143,519
Post-Go-Live Software Cost	\$1,332,060,606	\$1,332,060,606	\$1,170,000,000	\$2,664,121,212
Vendor Total	\$5,543,634,680	\$6,068,634,680	\$2,677,526,047	\$5,991,264,731
Services Cost				
Change Management Cost	\$1,052,893,519	\$1,527,858,025	\$1,109,047,840	\$1,109,047,840
Data Migration Cost	\$505,382,301	\$505,382,301	\$505,382,301	\$505,382,301
Prime Integrator	\$2,161,941,358	\$2,161,941,358	\$1,707,933,673	\$1,707,933,673
VA PMO Cost	\$2,315,962,964	\$2,565,954,091	\$2,328,407,136	\$2,328,407,136
Cloud Hosting	\$184,673,700	\$184,673,700	\$0	\$0
Services Subtotal	\$6,220,853,842	\$6,945,809,474	\$5,650,770,949	\$5,650,770,949
Contingency	\$2,352,897,704	\$2,602,888,831	\$1,665,659,399	\$2,328,407,136
Sub-Total	\$14,117,386,226	\$15,617,332,985	\$9,993,956,395	\$13,970,442,816
Complexity Factor	\$2,117,607,934	\$3,123,466,597	\$1,998,791,279	\$2,095,566,422
Grand Total	\$16,234,994,160	\$18,740,799,583	\$11,992,747,674	\$16,066,009,238

5.0 Summary of Findings

Grant Thornton utilized our technology adoption approach to assess various options for VA's modernized EHR. The assessment identified the clinical and IT priorities, benefits, risks and costs of each of four options for EHR modernization presented by VA. Our assessment found significant overlap in capability with respect to clinical priorities, and for the most part, alignment with VA's IT priorities. Options differentiate to a greater extent when assessed against the real and potential benefits and risks. These provide a framework against which VA leaders may weigh the options against one another, and informed the decision-criteria discussed in the Executive Summary. While Grant Thornton was not asked to provide a specific recommended option, our analysis provides objective information upon which a decision may be based.

Figure 12 provides a summary of each option's alignment with VA's clinical and technology priorities, as well as the relative benefits and risks associated.

Figure 12. Alignment with Clinical Priorities & IT Strategic Direction

Evaluation Factors	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercializ ed VistA	Option 4: COTS SaaS
Clinical priorities				
IT strategic direction				

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Benefits	HIGH	HIGH	HIGH*	HIGH*
Risk	MEDIUM	HIGH	HIGH	MEDIUM



*Rating assumes VA inserts appropriate language into the contract to guarantee access to and control of data as well as ability to connect third-party software at will.

In addition, Figure 13 provides the high-level cost breakdown of each option.

Figure 13. Costs of Four Options

Cost Component	Option 1: COTS	Option 2: COTS + eHMP	Option 3: Commercialized Vista	Option 4: COTS SaaS
Vendor Costs				
Software Implementation Cost	\$4,211,574,074	\$4,736,574,074	\$1,507,526,047	\$3,327,143,519
Maintenance & Support Cost	\$1,332,060,606	\$1,332,060,606	\$1,170,000,000	\$2,664,121,212
Vendor Total	\$5,543,634,680	\$6,068,634,680	\$2,677,526,047	\$5,991,264,731
Services Cost				
Change Management Cost	\$1,052,893,519	\$1,527,858,025	\$1,109,047,840	\$1,109,047,840
Data Migration Cost	\$505,382,301	\$505,382,301	\$505,382,301	\$505,382,301
Prime Integrator	\$2,161,941,358	\$2,161,941,358	\$1,707,933,673	\$1,707,933,673
VA PMO Cost	\$2,315,962,964	\$2,565,954,091	\$2,328,407,136	\$2,328,407,136
Cloud Hosting	\$184,673,700	\$184,673,700	-	-
Services Subtotal	\$6,220,853,842	\$6,945,809,474	\$5,650,770,949	\$5,650,770,949
Contingency	\$2,352,897,704	\$2,602,888,831	\$1,665,659,399	\$2,328,407,136
Subtotal	\$14,117,386,226	\$15,617,332,985	\$9,993,956,395	\$13,970,442,816
Complexity Factor	\$2,117,607,934	\$3,123,466,597	\$1,998,791,279	\$2,095,566,422
Grand Total	\$16,234,994,160	\$18,740,799,583	\$11,992,747,674	\$16,066,009,238

6.0 Recommendations

EHR modernization is a journey. While Grant Thornton makes no recommendation on which specific option VA should pursue, no matter the choice, the following is recommended in order to inform downstream decisions such as vendor selection (should a COTS solution be involved in the modern EHR), continued development of eHMP and other factors:

- Technical readiness assessment:** During interviews, a number of VA personnel expressed confidence that VA had the necessary network infrastructure, bandwidth and other technical capabilities to move to the cloud or adopt enterprise-wide SaaS solutions. However, there were others including VA leadership, both nationally and in the field, who expressed reservations regarding the organization having the network capacity and bandwidth to support the EHR in the cloud. We recommend that VA conduct a study to validate these statements. Readiness assessment must also include facilities, data centers and security components.

- Technical evaluation of eHMP:* During the interviews, some of the VA personnel shared their optimism that eHMP could help bridge the gap that currently exists around transparency and interoperability both across the different instances of VistA and also between VHA, DoD and the community providers. However, independent assessments of the technology and Grant Thornton's analysis of eHMP program documentation raise concerns as to the long-term viability of the product. A complete, independent assessment of eHMP from a technological standpoint is recommended to determine if it is scalable in its current form, and if not, the necessary additional cost to restructure the product so that it is scalable. In addition, it is also recommended that the assessment include eHMP's ability to integrate with COTS EHR solutions the way it promises to integrate with VistA.
- Acquisition approach:* VA has specific and critical needs that impact any solution VA chooses. It is critical that VA's needs are properly documented in the clinical and technical requirements of any procurement. This needs to be supported by robust business and technical architectures (capability maps, process models), systems quality factors, service level agreements and enterprise design. In addition, contractual requirements must also address any needs VA has, such as ownership of and access to data. These contractual requirements should be assessed and included as requirements in the solicitation. Cost models are validated and Independent Government Cost Estimates (IGCE) are established. This must include garnering best practices and lessons learned from the DoD Genesis acquisition. It may also include proof of concepts, controlled pilots and phased rollouts.
- Systems engineering and program management plan:* This should include strategy for requirements management, interface analysis, usability and human factors, architecture analysis and documentation, end-to-end testing, continuous risk management, development of performance metrics and an integrated master plan/schedule (IMP/IMS).
- System (application) and hardware inventory:* OI&T should conduct a detailed assessment and inventory of each clinical location to ensure all software is catalogued to understand interface requirements. Additionally a detailed desktop, printer and ancillary hardware inventory needs to be conducted as all of these devices will need to be evaluated against any of the strategic options for future usability.

The studies and actions we recommend above will have an impact on the total cost to implement a solution. The readiness assessment may uncover additional necessary investment to improve the performance and bandwidth of the network infrastructure. The systems engineering and program management plan may also increase cost as additional requirements are identified the PMO or vendor must address. The results of these studies may also impact our findings from a benefits and risks standpoint, as significant change in network or organizational improvements to support the transition may introduce risks not assessed. However, these actions are critical to support the successful implementation of any solution.

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8.0 Appendix A: Macro Assumptions

In assessing the options, Grant Thornton made the following assumptions:

- Grant Thornton used the Health Information Management Systems Society (HIMSS) definition of an EHR, which states: “The Electronic Health Record (EHR) is a longitudinal electronic record of patient health information generated by one or more encounters in any care delivery setting. Included in this information are patient demographics, progress notes, problems, medications, vital signs, past medical history, immunizations, laboratory data and radiology reports. The EHR automates and streamlines the clinician's workflow. The EHR has the ability to generate a complete record of a clinical patient encounter - as well as supporting other care-related activities directly or indirectly via interface - including evidence-based decision support, quality management, and outcomes reporting.”
- VA will implement the EHR as a component of the overall VA Digital Platform (VDP), as described in the strategy document published in 2016 “VA Digital Platform Strategy for Next Generation of Care at the VHA.” The VDP establishes a platform on which the EHR operates with other management information systems, such as human resources, financial management and customer relationship management, as well as external EHRs used in the healthcare community, to include DoD. In addition, through the VDP, VA will be able to adopt other tools available in the market to augment core EHR capabilities.
- This assessment focused on the EHR components of VistA only (core clinical, clinical ancillary and revenue cycle). This paper does not address the modernization of other components of VistA such as police and security, financial management, supply chain or others. Appendix E contains a list of current VistA modules that constitute the EHR.
- In assessing implementation costs, the continued carrying costs for maintaining the VistA EHR were deemed to be equal no matter the option selected, therefore they were not considered during this analysis.
- VA currently houses backup copies of electronic health records locally at VA Medical Centers (VAMCs) in the event of network disruptions, in addition to hardware for the provision of the new EHR product. There will be minimal, if any, net new hardware costs incurred as part of the transition to a modern EHR.
- This assessment is based upon strategic needs of the organization, from both a clinical and technological perspective. Detailed business and clinical requirements are not yet defined. The cost assessment therefore uses an analogous methodology and provides a Rough Order of Magnitude (ROM) cost estimate. Additionally, based upon our analysis, the DoD and Kaiser Permanente EHR adoptions are analogous projects.
- Industry benchmarks related to the adoption of new EHRs are relevant to this assessment. Benchmarks include the relative percentage of costs attributed to software, hardware, change management and other factors, as well as the proportional cost of SaaS models versus traditional deployment.
- Three of the four options include the adoption of a COTS EHR solution. Although all clinical and IT priorities can be satisfied by COTS software, a single COTS vendor may not address all equally. Therefore, VA may choose to adopt a vendor for a majority of the EHR components and then add, through the VDP, best-in-class capabilities available through other vendors in order to fully meet its clinical and IT priorities.

9.0 Appendix B: Stakeholder Interview Findings

9.1 Clinical Stakeholder Findings

In order to understand the experience of clinicians using CPRS and VistA for both clinical and research work, several qualitative interviews were conducted with VHA clinicians (both physicians and nurses), including some who had expertise and leadership roles in health informatics and health information technology implementation. The VHA interviews were led by the MITRE collaboration with Grant Thornton. While the majority of clinicians expressed that they are able to collaborate well with other clinicians in order to provide excellent care to Veterans, numerous themes were compiled after these discussions regarding ways in which an EHR solution improve Veteran and clinician experience.

Based on multiple EHR vendor interviews conducted by Grant Thornton, it was felt that all four strategic options could support the needs and requirements of VHA clinicians and leadership. This section highlights essential themes that clinicians expressed with regard to selection and implementation of a modern EHR.

9.1.1 Leadership

Key Messages: Clinicians articulated a feeling that there is a lack of central governance and that the problems are greater than just EHR choice. Many felt that:

- The *change management* aspect of an EHR transition is significant and the VA needs to be committed to understanding workflows in order to improve the experience for Veterans and clinicians
- Some providers feel significant *trust between clinicians and IT has been lost over time* with respect to partnership in VistA and CPRS development. Part of this is related to the fact that EHR improvements are hampered by budget and approval processes, and additionally, disconnect exists between VA facilities and IT with respect to business planning.
- Regardless of past issues, a number of the clinicians expressed a need for *shared partnership with IT* to deliver quality Veteran-centric care
- Clinicians also feel that the *contracting process is too long* and bureaucratic and needs attention because by the time tools are eventually developed, they are obsolete.

9.1.2 Clinical Workflow

Key Messages: Providers desire modern EHR capabilities that are intuitive, efficient and allow the clinician to spend more time delivering direct care to the patient. The following are key themes shared during the interviews:

- There is *lack of single-sign on*, which makes it frustrating to go back and forth between different applications
- There is no ability for physicians to easily see their schedules and those of trainees they are supervising. This makes it *difficult to plan their day* because for example, they cannot see if a patient has canceled and then adjust.
- Multiple clinicians mentioned that they need an *integrated way for patient information* to be presented on an EHR screen that *interfaces with clinical decision support tools* and makes *documentation streamlined* and accurate
- Despite the recognition that alerts and reminders are important parts of patient safety, there are often *too many screens and clicks that clinicians must encounter*. One nurse noted that the computer admission

protocol takes up to two hours for an intensive care unit patient, and 45 minutes for a floor patient, significant time sinks for a nurse who has multiple patients and time-sensitive responsibilities

In addition to the above, there were more focused comments shared such as:

- Because of the decentralized nature of IT, facilities have taken to implement local solutions (both designed internally by local VA IT personnel and COTS products). One provider provided an example that while the COTS solution for their emergency department (ED) worked very well and allowed them to easily see recent Veteran ED visits and reasons, this system did not interface with CPRS. As such, if a patient was admitted to the hospital, an admitting physician could not easily see the ED record (information is saved in cumbersome PDFs).
- There Mixed feedback was shared regarding CPRS usability, with some providers expressing that they felt CPRS was very easy to use and intuitive (multiple providers noted that it worked very well for pharmacy) while others felt that COTS solutions were much more user-friendly and capable.

9.1.3 Team-Based Care/PACT

Key Messages: As discussed previously, VA has a strong commitment to providing effective team-based care for Veterans through the PACT initiative. Each PACT “teamlet” is comprised of a Veteran, a primary care provider (physician, physician assistant, or nurse practitioner), a registered nurse who functions as a care manager for the team, a licensed practical nurse or medical assistant, and a clerical assistant.^{19–21} VA research has already shown that improved relationships with Veterans and speed of care received were noted positives of PACT.^{19,20} Despite all of this, CPRS does not support PACT well. VA clinicians have created work-arounds to address these deficiencies, but one group of VA providers detailed several EHR features that would be beneficial in order to support team-based care (Figure B-1).

- Providers are not able to directly communicate through the EHR outside of patient records. A workaround that many use today is adding additional signers to patient notes, which creates an alert to another provider to sign that note, but does not allow for a direct specific message to that provider which is in the EHR but not in a patient note.
- There is no good way to manage panels of patients or cohorts based on clinical condition because of limitations in VistA’s architecture.

Figure B-1. Clinical Team Needs for Team-Based Panel Management²²

Clinical Needs	Relevant Technical Capability
Allow user to group patients by a specific clinical condition.	The system should have multidimensional report capability, allowing the user to specify time period, patient group, and selected clinical data at a patient level.
Provide summary Data on key clinical variables (e.g. lab tests, prescriptions) that are used as markers of quality of care for a group of patients.	Reports need to be able to summarize numerator and denominator information for the patient group of interest.
Need resources to facilitate patient outreach (e.g., personalized patient letters or handouts)	The database system should be able to link pertinent information at a patient level, and provide an “on-demand” synopsis per individual patient.
Ability to easily track care across time.	The database system should be able to access clinical data in a longitudinal fashion at the patient level.

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Clinical Needs	Relevant Technical Capability
Facilitate collaboration among interdisciplinary providers.	The system must have a user interface that supports the needs of interdisciplinary clinical team members.
Provide timely data.	Data extraction from the electronic health record should be timely (preferably on a daily basis).
Need to be able to enter clinic-specific orders and requests.	Interface must have dual-way information flow between panel management tool and electronic medical record.

9.1.4 Analytics and Research

Key Messages: The desire for improved analytics and easier methods of accessing data for both clinical improvements and research were recurring themes expressed by clinicians and informaticists.

- Though many providers emphasized that the volume of data available for Veterans is impressive, *extracting this data usefully can be difficult and slow.*
- Clinicians described *difficulty with obtaining access to databases* and data warehouses and even once they do, they are *not user friendly*. Databases that users create often do not work outside a specific facility.
- Physicians note that they are expected to monitor their productivity but cannot view real-time metrics. Relatedly, users explained that it takes significant amounts of time to run reports that are needed quickly, which greatly hinders prospective research.

9.1.5 Mental Health

Key Messages: Mental health is an area of distinct importance to VA; there is a long history of programs and interventions to support Veterans, who at higher risk for mental health conditions in general, and others specifically such as post-traumatic stress disorder (PTSD) and suicide. Talking with providers allowed better understanding of some of the technology related challenges experienced by practitioners in this division.

- Veterans receive care from many providers and *coordination of care is difficult* to manage across multiple sites. This is especially critical at times of transition such as when Veterans are leaving active duty and are particularly vulnerable. Clinicians felt that there need to be *better methods for stratifying risk levels of patients* and tracking their care within an EHR.
- Providers would also like the *ability to easily code more detailed information* (e.g. the particular type of therapy provided or assessment completed).
- Documentation is highly narrative, and providers suggested that more *standardized ways of documenting health information* would be helpful.
- From the Veteran perspective, providers recommended *incorporating Veteran input and goals*, interventions and a care plan and allowing these to be integrated with the EHR. Currently, there are numerous self-assessment tools for Veterans but they do not connect with the EHR.

9.1.6 Interoperability

Key Messages: Many providers expressed numerous difficulties with sharing patient information outside the VA.

- Providers note that the majority of the time, if a patient is seen in the community, when their records are obtained they are largely in paper format and scanned into the EHR. They are linked as images/PDFs and *not integrated with the Veteran's clinical information* in CPRS, so they cannot be linked with clinical decision support tools or reminders.

- Providers note that if Walgreens and CVS can add immunization data into CPRS, it would be beneficial if other community providers could as well.
- Clinicians want *tools that connect with each other* better, such as kiosks or tablets into which Veterans can enter information and communicate with the EHR.

9.2 Validation of Findings with VHA Executive Leaders

Grant Thornton attended a VHA leadership dinner that included discussions surrounding the EHR Strategic Assessment. Along with seeking insights and feedback, a survey was administered to VHA leadership to compile stakeholder feedback and clinical priorities that were both discovered and considered throughout the stakeholder interviews and assessment period.

In the first part of the survey, participants were asked to identify which stakeholder feedback criteria resonated with them. Stakeholder feedback was narrowed down to the following categories; culture, communications, mental health, analytics and measurement, usability/tailorability, community care interviews, and package level discussion. The captured results are in Figure B-2 below.

Figure B-2. VHA Leadership Comments

	Description	Resonates (Number of times box was checked)	Percentage of results
Culture	There is a cultural legacy of partnership between clinicians and developers. Clinicians appreciate the ability to customize locally, working with developers to implement modifications to their instances of VistA. Several clinicians expressed satisfaction with this capability, and fear losing it with an enterprise COTS system.	18	55%
	Many clinicians will accept a change and are ready for a decision to be made. They are, however, reticent about the organization's ability to make a decision and successfully implement it.	20	61%
	Some concern of an exodus from VA for retirement eligible clinicians as they do not want to go through a difficult transition at this stage in their career.	8	24%
Communications	<i>Team-Based Care:</i> Communication between services is difficult now, so they have work arounds where they enter notes into the record and ask for a co-signature so another provider sees it and can respond. Need secure communications tools so the care team can interact without using the patient's record to do so.	16	48%
	<i>With community providers:</i> Care coordination and communication goes beyond just the care team. Communication with the patient, community providers, and others is important. Need a system that is easier to use for all parties. In the interview with Karen Hudgins, she noted that they are now up with encrypted email with community providers.	21	64%
	<i>With the Veteran:</i> Current capabilities with MyHealtheVet are clunky and hard to use. The Epic solution was brought up as a very good tool, used throughout the industry. VA should look to that type of solution to communicate with Veterans. Focus on mobile, getting ready for the younger generations.	14	42%

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	<i>Information Sharing: We overprotect the data and have too many security requirements that get in the way. Providers feel that it hinders their ability to perform their work. Other organizations are able to share data much more freely, why can't VA?</i>	18	55%
Mental Health	Providers want better tools to support care coordination within and across medical centers – High risk patients often receive care at multiple locations	22	67%
	Ability to interact with Veterans outside the care setting and receive information. This includes the use of mobile technologies to support self-help and transfer of information to the provider.	19	58%
	Existing system is limited in the ability to provide care planning at the level VA needs. Providers however do not believe commercial products have the answer – most systems do not address mental health as completely as VA.	9	27%
Analytics and Measurement	Informaticists generally agreed that they appreciated the ability to extract and analyze data for clinical and research purposes with VistA and would want this to continue.	17	52%
	Clinicians expressed difficulty conducting analysis at the patient or cohort level with FileMan. They need to be able to dynamically analyze data at the patient, cohort, population, and eventual genomic level.	19	58%
	From a measures standpoint, it is important to be able to measure performance. However, simply looking at care metrics isn't sufficient to truly measure performance. Canned reports are not able to provide the information needed. Clinicians want to make sure they can perform analysis beyond what is available from a canned report.	17	52%
	While enterprise analytics is seen as a positive with VistA, at the provider level, they don't have the analytics capability they need (described by one clinician with VistA development experience that this is a challenge with MUMPS). Describe downloading data from FileMan, which takes a long time, then having to export to excel and work with it a lot to get what they need from the data.	14	42%
	Looking for dashboards to support patient care, analytics and decision support	3	9%
Usability and Tailorability	Clinicians liked the ability to develop tailored solutions in VistA and were concerned that commercial products will not allow the level of customization they are used to.	10	30%
	Current system is not as user friendly as it could be. There are too many clicks necessary to get where you need to go, and too many screens to navigate. Solution should better align with how physicians work to smooth the process.	21	64%
	Information coming from outside providers need to be a part of the record rather than having to go to different places. Provided example where Walgreens and CVS can now populate the record. Why not other providers?	23	70%
	General discussion of data availability is that current system has data in too many places, requiring the provider to jump between screens/systems to view information.	12	36%
	Reminders – Not aligned to specialty or need. All reminders hit the PCP, which puts them into a mindless clicking mentality. Reminders should go to the clinician that needs it, not just to the PCP.	18	55%

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Innovations	Hospitals/VISNs are bringing in their own capabilities to bridge the gaps in technology (e.g., Cerner Lab). Lack of enterprise focus on new capabilities.	11	33%
	Feeling that OI&T is unable to support innovations, so the field has to do it. Example was given related to VistA multiple instances – Region 1 has built new capabilities in VistA (screens, workflows, etc.) and other regions can't take it in because OI&T can't always migrate these capabilities across the country.	20	61%
	Need to have a multi-disciplinary approach to IT innovation to understand how professionals work/work together.	17	52%
	One common theme on the future is having the medical record self-populate the information a physician needs to know coming into the visit, have the record “tell” the doctor the important/salient points and lead them through the encounter using decision support tools.	19	58%
Community Care interviews	There are currently five different legislative authorities for community care. This will make any claims management system hard to implement without customization. They are planning to merge the authorities into one authority, but not there yet. That would help with business rules around when to/not to pay.	14	42%
	Care coordination is also important with non-VA providers. Stakeholders talked about secure communications/encrypted email. They recently deployed that capability, but would like to do more to improve collaboration and coordination between providers.	17	52%
	Aligning what VA pays to community providers with third-party claims is important. Must be able to identify first and third-party claims received that can be charged to Veterans' insurance companies.	14	42%
Package-Level Discussion	Pharmacy – 80% of prescriptions filled by Consolidated Mail Outpatient Pharmacy (CMOP). The solution needs to account for this. It has to be an enterprise system that allows for CMOP and local staff to see everything. Feeling is that commercial products can support this, but there should still be an eye towards VA-specific needs.	17	52%
	Lab professionals articulated significant deficiencies with the lab package. The lab package has not been updated in a long time. VistA has difficulty importing lab data and updates cannot easily be made because they will break in other instances of VistA. They feel they need a relational database to handle their lab data. There is no lab information system and they are using middleware patches and products to try to manage this. They view VistA as archaic and a security risk with respect to lab. Other deficiencies in the current system include: microbiology, barcode reading, and order management.	21	64%

In the second part of the survey, participants were asked to rank the following clinical priorities on a scale of 1 to 5. Clinical priorities were grouped as care approaches unique to VA, workflow, team based care/PACT, analytics/research, mental health, and interoperability. Figure B-3 looks at the number of times a clinical priority was considered for ranking.

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Figure B-3. VHA Leadership Survey

Category	Number of Times Ranked	Percentage of Rankings
Care Approaches Unique to VA		
Configuration required to address Federal requirements while serving a unique population base e.g., pharmacy, tele-health, mental health	1	20%
Workflow		
Single location for Veteran information – whether VA or community generated records.	16	52%
Improved tele-health, mobile and web-based tools/technologies for managing Veteran care	8	26%
Scheduling ease for Veterans and providers	11	34%
Team-based care / PACT		
Improved care coordination	17	45%
Improved communication tools	7	30%
Management of Veteran cohorts – supporting Veteran groups with similar health concerns	2	40%
Analytics / Research		
Clinical decision and cognitive analytics support - care for an individual Veteran	12	35%
Population health - leveraging large data sets to improve care for groups	11	24%
Performance improvement - tracking outcomes between VA facilities/regions	4	24%
Ability to easily access data for clinical and research purposes	6	24%
Mental health		
Seamless integration of mental health into EHR	12	28%
Interoperability		
Seamless bi-directional exchange of data with DoD, community providers, etc.	21	40%

9.3 OI&T Stakeholder Findings

In order to understand the experience of OI&T staff, both leadership and technical, qualitative interviews were conducted throughout the strategic assessment. These stakeholder interviews were led by Grant Thornton in collaboration with MITRE Corporation. The purpose of these interviews were to better understand how the four potential strategic options align with the following OI&T's

stated priorities: single-view of Veteran and data management, strategic sourcing, buy-first approach, cloud-based, reduced IT footprint, interoperable with VistA, COTS, DoD, community care providers, etc.

9.3.1 Clinician Input into EHR Design

Key Messages: Providers had concerns about the ability of a commercial product to take into consideration VHA clinicians' wants and needs in the implementation process. Stakeholders explained that during the original development of VistA and CPRS, clinicians and end users priorities and practices were strongly taken into consideration. It is *very important to VA clinicians to have say* in their clinical practices, workflows, tools, and processes that support them.

9.3.2 Absence of Data Standardization

Key Messages: The current VistA environment is lacking data standardization across VHA sites.

- Stakeholders suggested having every VAMC running the same code base *without pulling away facilities' abilities* to do their own specific processes.
- At the data level, *standardization is important* for sharing data between VAMCs and elsewhere (DoD/community). A key concern surrounding data standardization and the VA, is that the primary problem with instituting standards is that control is currently siloed into non-interconnected regional data stores

9.3.3 Questioning Contractor Value

Key Messages: Third-party contractors are not providing true value to the VA. Stakeholders said that *contracts are limiting in nature*, which they feel prevents meaningful work from occurring. This restriction along with the contractor's unfamiliarity with VistA, and requirements not being effectively communicated, leads to inefficiency and poor results.

9.3.4 Development of Business Requirements

Key Messages: Developers expressed throughout the interviews that business processes and requirements created are not useful to developers but rather primarily designed for congressional needs and OI&T and VHA leaderships' priorities. Stakeholders felt OI&T and VHA leadership should develop of business requirements that allow for successful projects and mitigate change in project scope and direction.

9.3.5 Difficult System Navigation

Key Messages: Navigating between modules and search functions within the current system architecture is *extremely difficult* due to multiple log-ins and fire walls. Stakeholders expressed interest in incorporating single sign-on, and application interconnectivity into the new solution that VA decides to move forward with.

9.3.6 Network Capacity to Support New Solution

Key Messages: Several stakeholders expressed concern about limitations in VA's network inhibit future development

- lack of network segmentation by asset class was mentioned by one stakeholder

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- A concern expressed during one interview was that VA's network does not have the available bandwidth required by commercial systems.
- Another stakeholder expressed concern in regards to network capacity stating that VA's network is not reliable or standardized, which can result in concurrency problems. It is very important that the VA system be designed to operate natively in an asynchronous environment.

9.4 Stakeholders Interviewed

Figure B-4.VHA Stakeholders

Name	Title
Amy Colon	Program Manager, Pharmacy Benefits Management Services
Anthony P. Morreale, PharmD	Assistant Chief Consultant for Clinical Pharmacy Services & Healthcare
Blake J. Lesselroth MD, MBI	Hospitalist and Informaticist
Brook Watts, MD	Senior Advisor for Health informatics
Carrie Patton	Clinical Implementation Coordinator
Cathy Davis, RN	Chief Nurse, Primary Care
Charles Demosthenes, MD	Physician Lead, Analytics and Connected Care
Christopher Lacey, PharmD	Associate Chief, Clinical Pharmacy
Daniel Papell, PharmD	Pharmacist Clinical Application Coordinator
Bill Weppner, MD, MPH	Primary Care Chief
Karen Hudgins	Director, Community Care Transformation
Kathleen Lysell, PsyD	National Mental Health Director For Informatics
Michael Icardi, MD	National Director of Pathology and Laboratory Medicine Services
Monica Lypson MD, MHPE	Director, Medical and Dental Education
Steve Fihn, MD, MPH	Director, Clinical System Development and Evaluation
Steve Lieberman, MD	Assistant Deputy Under Secretary for Health for Access to Care
Tim Heimann, PharmD	Chief, Pharmacy Service
Eric Burgess	Associate Chief Financial Officer for Managerial Cost Accounting, VHA Office of Finance
Jianji Yang, PhD	Lead Data Architect and Informaticist
Joan Clifford, DNP	Deputy Assistant for Deputy Under Secretary for Health for Access to Care
Judy McConnachie, MPH	Administrative Director, Clinical Business Intelligence
Laura J. Kroupa, MD	Chief Medical Informatics Officer
Linda McConnell, MSN	Chief Nursing Officer
Lynn Sanders, PharmD	Associate Chief Consultant, Clinical Informatics and Pharmacy Re-Engineering, Pharmacy Benefits Management
Michael A. Valentino, MHSA, RPh	Chief Consultant Pharmacy, Pharmacy Benefits Management Services
Michael L. Davis	Executive Director, Access & Clinic Administration Program, VHA
Neil C. Evans, MD	Chief Officer, Connected Care
Rachel B. Ramoni, DMD, ScD	Chief Research & Development Officer
Rob Silverman, PharmD	Assistant Chief Consultant, PBM Clinical Informatics
Richard Barrow, BSN, MSHI	Nursing Informaticist
Rob Silverman, PharmD	Assistant Chief Consultant, PBM Clinical Informatics
Sheila Ochylski, DNP	Chief Nursing Informatics Officer
Shilpa Patel-Teague, MHA	Director for Clinical Programs, VHA
Thomas Emmendorfer, Pharm.D	Deputy Chief Consultant, Pharmacy Benefits Management Services

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Uche S. Uchendu, MD	Chief Officer, Office of Health Equity
Virginia S. Torrise, Pharm.D	Deputy Chief Consultant, Professional Practice and Clinical Informatics, Pharmacy Benefits Management
William Gunnar, MD, JD, FACHE	National Director of Surgery
William P. Patterson, MD, MSS	Network Director

Figure B-5. OI&T Stakeholders

Name	Title
Annette Gibbs-Skervin	Executive Director, Strategic Sourcing Transformation Management
Bill James	Deputy Assistant Secretary, Enterprise Program Management Office
Cynthia Bias	ASD VistA Evolution eHMP Product Manager
Daniel Carroll	IT Program Manager
Eugene Guglielmo	Senior Advisor, Health Data Management
Jack Galvin	Executive Director , End User Operations
Jason Hawsey	IT Specialist
Joel Russell	IT Specialist
John Short	Program Executive, VistA Evolution; Acting Deputy Director, DoD/VA Interagency Program Office
Keith Michael	VistA UX Product Manager
Kevin Meldrum	IT Specialist
Melanie Buechler	IT Specialist
Patrick Redington	IT Specialist
Roger Sigley	Program Manager
Roopangi Kadakia	Chief Cloud Strategist
Vanessa Davis	Health Product Support Director
Vitalia Devlin	Division Director, Health Product Support Clinical Product Support

10.0 Appendix C: Identification of Applicable Market Trends

Grant Thornton reviewed industry publications and research regarding the future direction of health IT and healthcare delivery. Publications and research included information from Gartner, Forrester and peer-reviewed medical journals. The following are trends identified as applicable to VA's EHR decision.

10.1 Precision Medicine

VA has long been a leader in research that incorporates new technologies in order to improve the care of Veterans. Precision medicine is defined as “treatments targeted to the needs of individual patients on the basis of genetic, biomarker, phenotypic, or psychosocial characteristics that distinguish a given patient from other patients with similar clinical presentations. Inherent in this definition is the goal of improving clinical outcomes for individual patients and minimizing unnecessary side effects for those less likely to have a response to a particular treatment.”²³ In 2009, VA began pilot work to plan for the Million Veterans Project, with the goal of improving understanding of health, disease, and the complex interplay between genetics, environment, and behavior. As of August 2016, more than 500,000 veterans have been enrolled.^{24–26} Precision medicine aims to increase quality/speed of clinically relevant analysis and interpretation of complex biological information both for VA patients and elsewhere.²⁷ Recent VA studies proposed and in progress use precision medicine to target advances in diagnosis and treatment of conditions as diverse as lung cancer, kidney disease, substance abuse disorders, PTSD, cardiovascular disease, and vision loss.^{25,27}

In order to support precision medicine as it is used more widely in the clinical rather than solely research setting, there are several technical requirements for an EHR. In addition to development of data standards for genetic test results, there need to be common data formats using standardized medical terminologies.²⁸ EHRs should be able to populate genetic and pharmacogenomics data and integrate with clinical decision support tools. Assistance with medication dosing, facilitation of orders, improved alerts and reminders, display of relevant information, and workflow support are some of the efficiencies that can be realized.^{28,29} EHRs' interfacing with research data warehouses will also allow cross-population queries and improvements in individual patients' care through analysis of larger patient data sets.³⁰

10.2 Telehealth Services

As healthcare delivery transitions more and more to settings other than hospitals, the healthcare industry continues to innovate. Telehealth and Internet of Things and wearable technologies have the potential to transform care. Telehealth can be defined as “a broad variety of technologies and tactics to deliver virtual medical, health, and education services. Telehealth is not a specific service, but a collection of means to enhance care and education delivery.”³¹ Telehealth functionalities have been integrated in EHR systems and are already showing promising results in terms of patient satisfaction, cost reduction, and efficiency for providers.^{32–34} Medicare has provided rural health guidelines highlighting services that can be provided via telehealth and are reimbursable.³⁵

VA continues to develop ways of providing care to Veterans while improving quality, efficiency, and convenience. Approximately 25 percent of all Veterans live in predominantly rural areas, and they

are disproportionately older, which creates opportunities for new types of care.^{36,37} Approximately 30 percent of Veterans have no access to the internet, and this group is also disproportionately older.³⁸

VA Telehealth Services uses both synchronous (e.g. real-time videoconferencing between patients and a care team, remote medical device monitoring) and asynchronous (e.g. acquisition of and transmission of medical data for later review by providers, patient video education modules) communication to supplement face-to-face appointments and make receiving care more convenient for Veterans. Connected Care, which resulted from merging VA's Telehealth Services and Connected Health, is part of VA's efforts to streamline VA's digital health technologies to enrich Veteran care.^{7,8} Connected Care is comprised of VA Telehealth Services, MyHealtheVet, VA Mobile Health, and the VHA Innovation Program. VA Telehealth Services uses both synchronous (e.g. real-time videoconferencing between patients and a care team, remote medical device monitoring) and asynchronous (e.g. acquisition of and transmission of medical data for later review by providers, patient video education modules) communication to supplement face-to-face appointments and make receiving care more convenient for Veterans.^{7,8} Research shows that these initiatives have improved Veteran satisfaction by reducing travel and wait times.^{8,9} In addition, providers endorse improved access, care coordination, and quality of care.⁹ MyHealtheVet is VA's personal health record (PHR) which allows Veterans to record and view medical information, order medication refills, and send messages to their care team. VA Mobile Health develops apps to create new ways for Veterans and care teams to interact and coordinate care on mobile platforms. Finally, the VHA Innovation Program leverages both VA employees and private sector professionals to develop new ideas that improve VHA care and service to Veterans.^{7,8}

In order to maximize the benefit of these care delivery mechanisms, an EHR must be able to manage multiple different types of communication. In addition to synchronous (e.g. real-time video transmission, remote patient data monitoring) and asynchronous (store-and-forward) transmission, integration of mobile adjuncts and wearable devices (Internet of Things) need to be considered. VA has shown interest in incorporating medical devices and Internet of Things into patient care responsibly, and is investigating ways to ensure the security of these devices.^{39,40}

10.3 Advanced Computing

Advanced computing is leading to new evolutions in medical diagnosis, prognosis, and treatment. Artificial Intelligence (AI), defined broadly as “a branch of computer science dealing with the simulation of intelligent behavior in computers or the capability of a machine to imitate intelligent human behavior” is being utilized by the healthcare industry to power clinical decision support and diagnostic tools.^{41,42} Technologies like machine learning (including deep learning/neural networks) and natural language processing, are being applied to parse clinical notes, text elements of lab values and other relevant data from the EHR and other clinical sources in order to enhance a physician's diagnostic and treatment capabilities and in some cases to actually act as a caregiver via mobile technologies.⁴²⁻⁴⁴ AI tools (including large-scale implementations like Google's DeepMind and IBM's Watson) accomplish this by incorporating large amounts of clinical and subclinical data and then leveraging their high capacity processing capability in order to analyze this data and provide relevant information to the physician. Machine learning has the potential to assist physicians with differential diagnosis, treatment options suggestions and recommendations.^{42,45,46}

Internally, VA Informatics and Computing Infrastructure (VINCI) is an initiative that provides computing resources to improve researchers' access to large amounts of Veteran data to facilitate analysis while protecting privacy and security. VINCI is also engaged in developing an ecosystem for

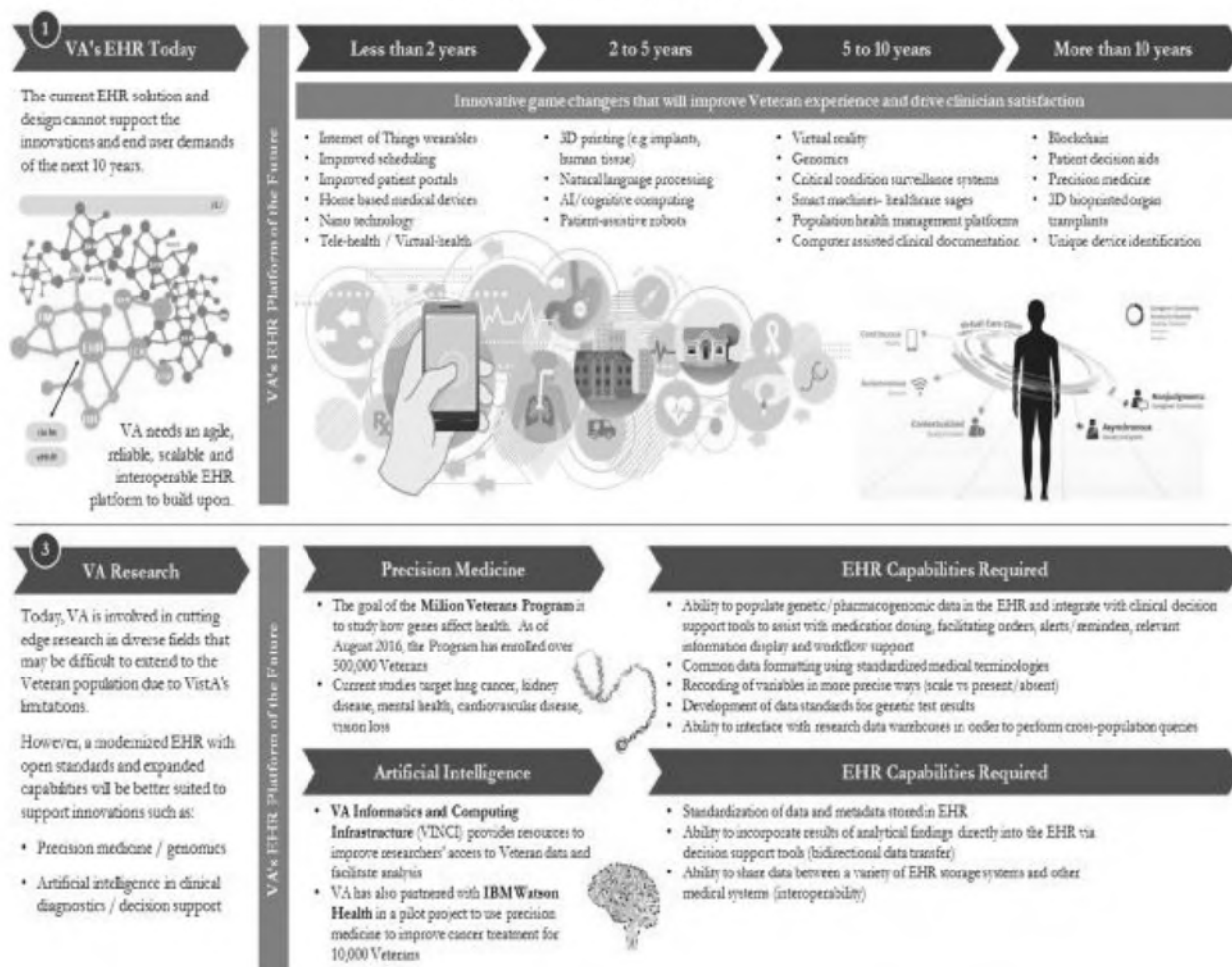
natural language processing that would ideally interface with VA's EHR⁴⁷⁻⁴⁹ Research projects already in progress by VA researchers include: using reinforcement learning (one type of AI) with mobile health tools to manage chronic pain, employing natural language processing to assess treatment performance for patients with congestive heart failure.^{43,44} Recently, VA engaged in a public-private partnership with IBM Watson in a pilot project to use precision medicine to improve cancer treatment for 10,000 Veterans.^{50,51}

In order to employ these technologies clinically, there needs to be standardization of data and metadata that is stored in EHRs, the ability to incorporate results of analytical findings directly into an EHR via clinical decision support tools in a bidirectional manner, and the ability to communicate between a variety of EHR and other medical storage systems.⁴⁶

10.4 Delivering Patient Care through Innovation

The graphic below (Figure C-1) looks at the current state of VA, including its EHR package and ongoing research activities in conjunction with a view of potential future innovative game changers and the required modern EHR capabilities that will improve Veteran experience and drive clinician satisfaction.

Figure C-1. VA EHR Transformation⁵²



11.0 Appendix D: Calculation of Cost Estimates

11.1 Option 1: COTS EHR

Option 1: COTS	Outcome																																	
COTS Vendor total costs years 1-15	<div>1. COTS Cost Break down for Implementation Phase of the Software costs. Based on a survey of leading industry EHR provides</div> <table><thead><tr><th></th><th>Included in COTs Quote</th><th>Cost Allocation</th></tr></thead><tbody><tr><td colspan="3">Cost Components</td></tr><tr><td>Software</td><td>Yes</td><td>28%</td></tr><tr><td>Vendor Team & Support</td><td>Yes</td><td>41%</td></tr><tr><td>Systems Integration</td><td>Yes</td><td>3%</td></tr><tr><td>IT Infrastructure HW & SW</td><td>No</td><td>6%</td></tr><tr><td>Application Support</td><td>No</td><td>11%</td></tr><tr><td>End user devices</td><td>No</td><td>2%</td></tr><tr><td>User training at Go-Live</td><td>No</td><td>8%</td></tr><tr><td>Other Project Cost</td><td>No</td><td>1%</td></tr><tr><td>Total</td><td>-</td><td>100%</td></tr></tbody></table> <div>2. Used an average of several vendor ROM estimates for a COTS implementation average of \$3.03B, this number was used as the basis for the estimate. This was divided by software (28%), Vendor Team & Support (41%) and Systems Integration (3%) for the total 10-year Implementation Cost of \$4.21B. The \$4.21B was then multiplied by the cost allocation for the given area to determine the component cost of these areas:<ul style="list-style-type: none">Total Vendor Cost = $\frac{\\$3,032,333,333}{72\%} = \\$4,211,574,074$Software = $28\% \times \\$4,211,574,074 = \\$1,179,240,741$Vendor Team & Support = $41\% \times \\$4,211,574,074 = \\$1,726,745,370$IT Infrastructure HW & SW = $6\% \times \\$4,211,574,074 = \\$252,694,444$Systems Integration = $3\% \times \\$4,211,574,074 = \\$126,347,222$Application Support = $11\% \times \\$4,211,574,074 = \\$463,273,148$End user devices = $2\% \times \\$4,211,574,074 = \\$84,231,481$User training at Go-live = $8\% \times \\$4,211,574,074 = \\$336,925,926$Other Project Cost = $1\% \times \\$4,211,574,074 = \\$42,115,741$</div> <div>3. The implementation timeline was assumed to be 13 instances of Vista per year for 10 years to cover all 130 instances of Vista at VA. The annual implementation cost per year were determined by the following calculation:<ul style="list-style-type: none">Software = $10\% \times \\$1,179,240,741 = \\$117,924,074$Vendor Team & Support = $10\% \times \\$1,726,745,370 = \\$172,674,537$</div>		Included in COTs Quote	Cost Allocation	Cost Components			Software	Yes	28%	Vendor Team & Support	Yes	41%	Systems Integration	Yes	3%	IT Infrastructure HW & SW	No	6%	Application Support	No	11%	End user devices	No	2%	User training at Go-Live	No	8%	Other Project Cost	No	1%	Total	-	100%
	Included in COTs Quote	Cost Allocation																																
Cost Components																																		
Software	Yes	28%																																
Vendor Team & Support	Yes	41%																																
Systems Integration	Yes	3%																																
IT Infrastructure HW & SW	No	6%																																
Application Support	No	11%																																
End user devices	No	2%																																
User training at Go-Live	No	8%																																
Other Project Cost	No	1%																																
Total	-	100%																																

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- IT Infrastructure HW & SW = 10% x \$252,694,444= \$25,269,444
- Systems Integration = 10% x \$126,347,222= \$12,634,722
- Application Support = 10% x \$463,273,148= \$46,327,315
- End user devices = 10% x \$84,231,481= \$8,423,148
- User training at Go-live = 10% x \$336,925,926 = \$33,692,593
- Other Project Cost = 10% x \$42,115,741= \$4,211,574

4. Annual Maintenance and Support costs were derived from the vendor quotes by calculating the total amount of facilities per year being supported throughout the vendor's implementation phase and dividing non-service vendor costs by it.

Year	1	2	3	4	5	6	7	8	9	10
Fac/yr	0	1	7	10	25	25	25	25	25	25
Total Fac/yr	1		8	18	43	68	93	118	143	168

Total Facility Live Years 660
 10 Year Costs \$1,097,000,000 Net Total 10 Year Cost
 Per Year Per Facility Cost \$1,662,121 = \$1,097,000,000/660
 Annual Cost for 168 Hospitals \$279,236,363 = 1,662,121 * 168 Hospitals
 Total Post Implementation M&S \$1,396,181,818 = 279,236,363 * year 11-15.

However, as the number obtained is averaged with other vendor supplied numbers, post-implementation the annual cost are an average of \$266,412,121 per year.

5. Data mapping costs were from previous efforts, VA was able to complete comprehensive data migration tasks at 66 sites in 6 years and 10 months. The resources for this effort were 20 FTE, plus 200hrs of overtime per instance; this corresponds to 7.47 sites per year. In order to meet VA's current mapping goals of 130 instances within 8-years, VA will need to map 16.25 sites per year; this is an increase of 218% over the previous effort. As the limiting factor effecting integration is available FTEs, VA will need to scale-up staffing to 43.52 FTEs, while maintaining 200hrs of available overtime per instance.

1. Supporting Calculation:¹⁴

5.1.1 Historical Data

- 5.1.1.1 66 sites mapped / 6.833 years of effort = 7.47 site per year
 5.1.1.2 130 Total Vista Instances / 8 year project = 16.25 sites per year
 5.1.1.3 Subsequently a 218% faster project is need, the limiting constraint is assumed to be labor.
 5.1.1.4 20 FTE for original project tempo * 218% = 43.52 FTE needed
 5.1.1.5 ((FTE * Salary Level * Instances) + (Hourly Salary * OT Hours * Instances)) = \$505,382,301

<i>FTE Required</i>	<i>Salary Level (GS13, DC Locality)</i>	<i>Total Vista Instances to Migrate</i>	<i>Hourly Salary + OT</i>	<i>OT hours</i>
43.52	\$89,033	130	\$64.20	200
Migration Phase(Single Instance)	Per Site Cost	Notation		
Data Mapping	\$3,887,556	Calculated as ((FTE * Salary Level * Instances) + (Hourly Salary * OT Hours * Instances))/130 #This is how we did the data		

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	<table><tr><td>Total Cost to Migrate a Single Instance</td><td>\$3,887,556</td><td>mapping cost for the VDP Sum of all component costs</td></tr><tr><td>Total Cost to Migrate All VistA Instances</td><td>\$505,382,301</td><td>Per instance cost multiplied by number of instances</td></tr></table>	Total Cost to Migrate a Single Instance	\$3,887,556	mapping cost for the VDP Sum of all component costs	Total Cost to Migrate All VistA Instances	\$505,382,301	Per instance cost multiplied by number of instances											
Total Cost to Migrate a Single Instance	\$3,887,556	mapping cost for the VDP Sum of all component costs																
Total Cost to Migrate All VistA Instances	\$505,382,301	Per instance cost multiplied by number of instances																
Total 15-year Project Costs	<p>6. To calculate the total 15-year project cost the following calculations were used.</p> <ul style="list-style-type: none">Total 10-year Vendor Cost= sum of the Vendor total cost (software component costs plus annual maintenance and support costs) for years 1 through 10.Change management cost was assumed to be 25% given the scale and complexity of VA Change management cost= $\frac{\text{Total 10-year Vendor Cost}}{0.75} \times 0.25 = \\$1,052,893,519$Data migration cost were determined to be \$505,382,301Post-Implementation Software Cost = sum of the support totals for years 11-15 = \$1,332,060,606Prime Integrator = Software cost x (11/6) = \$2,161,941,358VA PMO= ((10-year Vendor cost + Change Management Cost + Data Migration Cost + Post-Implementation Software Cost + Prime Integrator)/0.8)x (0.2) = \$2,315,962,964Cloud Hosting:<ul style="list-style-type: none">This model assumes VA's storage, RAM and needed processing cores are equivalent to the values stated in the VDP Whitepaper, page 28.AWS GovCloud estimates were utilized for values. As hosting is a commodity within industry, these costs were deemed representative of the industry<table><tr><td>Storage Average (TB)</td><td>RAM (GB)</td><td>Cores</td></tr><tr><td>729.3</td><td>17,160</td><td>4290</td></tr></table> <table><tr><td>Storage Cost (per TB/mo)</td><td>\$656,370 (729.3TB x \$0.9 \$0.9 Storage cost per TB)</td></tr><tr><td>Storage Cost Per year</td><td>\$7,876,440 (Storage cost per month x 12)</td></tr></table> Each x1 server node has 72 cores. 4290 cores/72 = 59.58. Hosts are dedicated so 60 blades are needed Node cost is \$73,919 per year/per node ^{17,18} Processing Cost per Year: (Assume x1 Nodes Dedicated Host, Up-Front Pay) \$4,435,140 (Cost Per-node x Needed Nodes) <table><tr><td>Total 1-year Cost</td><td>\$12,311,580 (Cost Per-TB + Processing Cost)</td></tr><tr><td>Total 10-year Cost</td><td>\$123,115,800</td></tr><tr><td>Total 15-year Cost</td><td>\$184,673,700</td></tr></table> <ul style="list-style-type: none">Contingency was 20% of the total of 10-year Vendor cost + Change Management Cost + Data Migration Cost + Post- Implementation Software Cost + Prime Integrator + VA PMO + cloud hosting = \$2,352,897,704Total 15-year Cost \$14,117,386,226		Storage Average (TB)	RAM (GB)	Cores	729.3	17,160	4290	Storage Cost (per TB/mo)	\$656,370 (729.3TB x \$0.9 \$0.9 Storage cost per TB)	Storage Cost Per year	\$7,876,440 (Storage cost per month x 12)	Total 1-year Cost	\$12,311,580 (Cost Per-TB + Processing Cost)	Total 10-year Cost	\$123,115,800	Total 15-year Cost	\$184,673,700
Storage Average (TB)	RAM (GB)	Cores																
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Total 1-year Cost	\$12,311,580 (Cost Per-TB + Processing Cost)																	
Total 10-year Cost	\$123,115,800																	
Total 15-year Cost	\$184,673,700																	

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11.2 Option 2: COTS with eHMP

Costing Step	Outcome																																
COTS Costing	For the COTS portion of Option 2: COTS + eHMP, the same costing approach was used as in Option 1: COTS																																
eHMP	<div>The eHMP component was costed using data provided by VA leadership</div> <div>The Year 1 Startup cost are as followed:</div> <table><tr><th>Start Up Cost</th><th>Year 1</th></tr><tr><td>Hosting at a Commercial Cloud- Services (OM)</td><td>\$ 18,000,000</td></tr><tr><td>Operational Support- Services (OM)</td><td>\$ 7,000,000</td></tr><tr><td>Software license Renewal (OM)</td><td>\$ 4,000,000</td></tr><tr><td>New SW Licenses (DME)</td><td>\$ 22,000,000</td></tr><tr><td>Cloud Migration- Services (DME)</td><td>\$ 8,000,000</td></tr><tr><td>WAN Connection- Equipment (DME)</td><td>\$ 11,000,000</td></tr><tr><td>Wan-Telecommunication Services (OM)</td><td>\$ 1,600,000</td></tr><tr><td>VHA-Org. Change Management (OCM)</td><td>\$ 25,000,000</td></tr><tr><td>Total</td><td>\$ 96,600,000</td></tr></table> <div>The Recurring eHMP Costs for Year 2 to Year 15</div> <table><tr><th>Recurring Cost</th><th>Year 1</th></tr><tr><td>Hosting at a Commercial Cloud- Services (OM)</td><td>\$ 18,000,000</td></tr><tr><td>Operational Support- Services (OM)</td><td>\$ 7,000,000</td></tr><tr><td>Software license Renewal (OM)</td><td>\$ 4,000,000</td></tr><tr><td>Wan-Telecommunication Services (OM)</td><td>\$ 1,600,000</td></tr><tr><td>Total</td><td>\$ 30,600,000</td></tr></table> <div>The total 15 year costs were determined to be \$525,000,000</div>	Start Up Cost	Year 1	Hosting at a Commercial Cloud- Services (OM)	\$ 18,000,000	Operational Support- Services (OM)	\$ 7,000,000	Software license Renewal (OM)	\$ 4,000,000	New SW Licenses (DME)	\$ 22,000,000	Cloud Migration- Services (DME)	\$ 8,000,000	WAN Connection- Equipment (DME)	\$ 11,000,000	Wan-Telecommunication Services (OM)	\$ 1,600,000	VHA-Org. Change Management (OCM)	\$ 25,000,000	Total	\$ 96,600,000	Recurring Cost	Year 1	Hosting at a Commercial Cloud- Services (OM)	\$ 18,000,000	Operational Support- Services (OM)	\$ 7,000,000	Software license Renewal (OM)	\$ 4,000,000	Wan-Telecommunication Services (OM)	\$ 1,600,000	Total	\$ 30,600,000
Start Up Cost	Year 1																																
Hosting at a Commercial Cloud- Services (OM)	\$ 18,000,000																																
Operational Support- Services (OM)	\$ 7,000,000																																
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New SW Licenses (DME)	\$ 22,000,000																																
Cloud Migration- Services (DME)	\$ 8,000,000																																
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VHA-Org. Change Management (OCM)	\$ 25,000,000																																
Total	\$ 96,600,000																																
Recurring Cost	Year 1																																
Hosting at a Commercial Cloud- Services (OM)	\$ 18,000,000																																
Operational Support- Services (OM)	\$ 7,000,000																																
Software license Renewal (OM)	\$ 4,000,000																																
Wan-Telecommunication Services (OM)	\$ 1,600,000																																
Total	\$ 30,600,000																																
Adding COTs and eHMP	<div>The eHMP costs were added to the COTS cost for the 15-year total.</div> <table><tr><th>Years</th><th>eHMP</th><th>COTs</th></tr><tr><td>1</td><td>\$96,600,000</td><td>\$421,157,407</td></tr><tr><td>2</td><td>\$30,600,000</td><td>\$421,157,407</td></tr><tr><td>3</td><td>\$30,600,000</td><td>\$421,157,407</td></tr></table>	Years	eHMP	COTs	1	\$96,600,000	\$421,157,407	2	\$30,600,000	\$421,157,407	3	\$30,600,000	\$421,157,407																				
Years	eHMP	COTs																															
1	\$96,600,000	\$421,157,407																															
2	\$30,600,000	\$421,157,407																															
3	\$30,600,000	\$421,157,407																															

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	4	\$30,600,000	\$421,157,407
	5	\$30,600,000	\$421,157,407
	6	\$30,600,000	\$421,157,407
	7	\$30,600,000	\$421,157,407
	8	\$30,600,000	\$421,157,407
	9	\$30,600,000	\$421,157,407
	10	\$30,600,000	\$421,157,407
	11	\$30,600,000	\$266,945,425
	12	\$30,600,000	\$266,945,425
	13	\$30,600,000	\$266,945,425
	14	\$30,600,000	\$266,945,425
	15	\$30,600,000	\$266,945,425
	Total 15-year Costs		\$6,068,634,680
	*assuming average COTs Vendor Costs		
Total Project Costs Calculation	The total project costs were calculated as in the same method as in Option 1: COTS.		
	Total 15-year Project Cost	Total Cost	% of Total Cost
	Total 10-year Vendor Cost	\$ 4,583,574,074	29%
	Change Management Cost	\$ 1,527,858,025	10%
	Data Migration Cost	\$ 505,382,301	3%
	Post-Implementation Software Cost	\$ 1,485,060,606	10%
	Prime Integrator	\$ 2,161,941,358	14%
	VA PMO	\$ 2,565,954,091	16%
	Cloud Hosting	\$ 184,673,700	1%
	Subtotal	\$ 13,014,444,155	83%
	Contingency (20%)	\$ 2,602,888,831	17%
	Total 15-year Cost	\$15,617,332,985	

11.3 Option 3: Commercialization of Vista

Costing Step	Outcome
Vista Calculations	<p>As in the other analysis, a vendor ROM estimate for EHR implementation of \$554M was used as the basis; this number was divided by the percentage cost centers for: software (28%), Vendor Team & Support (41%), Systems Integration (3%) and Go-Live training (8%) for a total Vendor Cost of \$694,186,047.</p> <p>An identical distribution of EHR cost centers were utilized as in the commercial SaaS (Option 4: COTS SaaS) model.</p>

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	Total Vendor Cost=	
	<ul style="list-style-type: none"> Total Vendor Cost = $\frac{\\$554,000,000}{80\%} = \\$694,186,047$ 	
	The \$694,186,047 was then multiplied by the cost allocation for the given area to determine the component cost of these areas:	
	Costs Components	Cost Allocation Component
	Software	28% \$ 194,372,093
	Vendor Team & Support	41% \$ 284,616,279
	IT Infrastructure HW & SW	6% \$ 41,651,163
	Systems Integration	3% \$ 20,825,581
	Application Support	11% \$ 76,360,465
	End user devices	2% \$ 13,883,721
	User training at Go-Live	8% \$ 55,534,884
	Other Project Cost	1% \$ 6,941,860
	Total	\$ 694,186,047
	The annual maintenance and support costs was calculated for each year by the formula:	
	<ul style="list-style-type: none"> Annual Maintenance & Support Cost= $\frac{1}{\# \text{ of Instances Implemented}} \times \\$1,800,000$ (average cost M&S per VistA instance) 	
	The annual maintenance cost for the implementation phase (years 1-10) were included in the cost estimate.	
VistA Modernization	VistA 4 Evolution Cost Centers were pulled from the VistA 4 Life Cycle Cost Estimate document.	
	The relevant cost centers were determined to be:	
	Government Program Management	\$ 54,630,000
	Program Management-Contractor	
	System Engineering	\$ 84,200,000
	API Exposure	\$ 36,960,000
	API Exposure 2.0	\$ 8,780,000
	API Exposure 2.0-Phase II	\$ 6,390,000
	Clinical Capabilities- EHR Certification 2014	\$ 859,890,000
	Clinical Decision Support	\$ 23,450,000
	Clinician Services (Misc. clinical modules)	\$ 30,520,000
	Clinician Services Lab/Pharmacy	\$ 97,910,000
	Clinician Services Phase II	\$ 71,600,000
	Clinician User Interfaces	\$ 85,530,000
	eHMP Enterprise Wide Deployment	

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	Enhancements to Scheduling Module	\$ 4,090,000
	FileMan Modernization	\$ 1,370,000
	Immunization Module	\$ 15,920,000
	Interoperability/Data Standard (FileMan)	\$ 29,010,000
	Interoperability/Data Standard (Pharmacy)	\$ 64,620,000
	Laboratory Module Enhancements	\$ 28,170,000
	Laboratory Module Modernization	\$ 30,500,000
	Pharmacy Module	\$ 25,100,000
	Radiology	\$ 29,580,000
	Scheduling Module	\$ 8,520,000
	Specialty Clinical Modules (Women's Health)	\$ 21,050,000
	Veteran Authorization and Preferences	\$ 7,090,000
	VistA Immunization Enhancement	\$ 1,800,000
	VistA Service Assembler- Phase II	
	VistA Services Assembler	
	Total	\$ 1,626,680,000
	<p>It was assumed a risk sharing of 50:50 would occur between VA and the commercial vendor, which lowered this amount to \$813,340,000.</p> <p>This was then distributed over a 10-year implementation period on an equal basis of 10% per year, or \$81,334,000 annually throughout implementation.</p>	
15-Year Project Costs	<p>To calculate the total 15-year project cost the following calculations were used.</p> <ul style="list-style-type: none"> Total 10-year Vendor Cost= sum of the Vendor total cost (software component costs plus annual maintenance and support costs) for years 1 through 10 = \$1,507,526,047 Change management cost was assumed to be 25% given the scale and complexity of VA Change management cost= $\frac{\text{Total 10-year Vendor Cost}}{0.75} \times 0.25 = \\$1,109,047,840$ Data migration cost were determined to be \$505,382,301 with the same methodology as in the rest of the Options as VistA does not have a common model and enforced data standards. Post-Implementation Software Cost = sum of support costs total for years 11-15 = \$1,170,000,000 Prime Integrator = Software cost x (11/6) = \$1,707,933,673 VA PMO costs = ((10-year Vendor cost + Change Management Cost + Data Migration Cost + Post- Implementation Software Cost + Prime Integrator)/0.8)x (0.2) = \$2,328,407,136 Contingency was calculated at 20% of the total of 10-year Vendor cost + Change Management Cost + Data Migration Cost + Post- Implementation Software Cost + Prime Integrator + VA PMO = \$1,665,659,399 Total 15-year costs are calculated at = \$9,993,956,395 	

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11.4 Option 4: SaaS

Costing Step	Outcome																												
Vendor ROM Cost	<p>Used an average of several vendor ROM estimates for a COTS implementation average of \$3.03B, this number was used as the basis for the estimate. This number was then multiplied by a scalar factor of .79 in order to adjust the cost COTS average to a SaaS implementation number.</p> <p>Scalars are derived as follows:</p> <table><tr><th></th><th>Implementation Costs</th><th>Yearly Cost (After Year 1)</th><th>5-yr TCO</th></tr><tr><td>Non-SaaS:</td><td>33000</td><td>4000</td><td>48000</td></tr><tr><td>SaaS:</td><td>26000</td><td>8000</td><td>58000</td></tr><tr><td>Factor:</td><td>0.787878788</td><td>2</td><td>1.208333333</td></tr><tr><td>Narrative:</td><td>Implementation costs (including 1st year licensing cost) for a SaaS option is 79% of what it would be for a COTS option</td><td>Annual recurring costs for a SaaS option are 200% of what it would be for a COTS option</td><td>This is built out to a 5-year model. At this resolution, SaaS is more expensive than COTS by about %21</td></tr></table> <p>Total SaaS Implementation Costs = Vendor Average * .79 = \$2,395,543,333.33</p> <p>This was divided by software (28%), Vendor Team & Support (41%) and Systems Integration (3%) for the total 10-year Implementation Cost of \$3.3B. The \$3.3B was then multiplied by the cost allocation for the given area to determine the component cost of these areas:</p> <p>Total SaaS Vendor Cost=</p> <ul style="list-style-type: none">Total Vendor Cost = $\frac{\\$2,395,543,333}{72\%} = \\$3,327,143,519$ <p>The software cost components were determined by the following calculations. These were then scaled over the course of the 10-year implementation and 5-year post-go-live phase.</p> <ul style="list-style-type: none">Software = 28% x \$3,327,143,519 = \$931,600,185Vendor Team & Support = 41% x \$3,327,143,519 = \$1,364,128,843IT Infrastructure HW & SW = 6% x \$3,327,143,519 = \$199,628,611Systems Integration = 3% x \$3,327,143,519 = \$99,814,306Application Support = 11% x \$3,327,143,519 = \$365,985,787End user devices = 2% x \$3,327,143,519 = \$66,542,870User training at Go-live = 8% x \$3,327,143,519 = \$266,171,481Other Project Cost = 1% x \$3,327,143,519 = \$33,271,435 <table><tr><th>Year</th><th>Number of Hospitals</th></tr><tr><td>1</td><td>0</td></tr><tr><td>2</td><td>1</td></tr><tr><td>3</td><td>7</td></tr></table>		Implementation Costs	Yearly Cost (After Year 1)	5-yr TCO	Non-SaaS:	33000	4000	48000	SaaS:	26000	8000	58000	Factor:	0.787878788	2	1.208333333	Narrative:	Implementation costs (including 1st year licensing cost) for a SaaS option is 79% of what it would be for a COTS option	Annual recurring costs for a SaaS option are 200% of what it would be for a COTS option	This is built out to a 5-year model. At this resolution, SaaS is more expensive than COTS by about %21	Year	Number of Hospitals	1	0	2	1	3	7
	Implementation Costs	Yearly Cost (After Year 1)	5-yr TCO																										
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Narrative:	Implementation costs (including 1st year licensing cost) for a SaaS option is 79% of what it would be for a COTS option	Annual recurring costs for a SaaS option are 200% of what it would be for a COTS option	This is built out to a 5-year model. At this resolution, SaaS is more expensive than COTS by about %21																										
Year	Number of Hospitals																												
1	0																												
2	1																												
3	7																												

Report on the Strategic Options for the Modernization of the Department of Veterans Affairs Electronic Health Record

	4	10
	5	25
	6	25
	7	25
	8	25
	9	25
	10	25
	11	-
	12	-
	13	-
	14	-
	15	-
	<p>The annual maintenance and support costs was calculated for each year by the formula:</p> <ul style="list-style-type: none"> Annual Maintenance & Support Cost= $\frac{1}{\text{\# of Hospitals Implemented}} \times \\$532,824,242 \text{ (average cost)}$ The vendor provided a range of annual maintenance post-go-live of \$220,000,000-\$300,000,000. These costs were averaged \$266,412,121, as per the method utilized for implementation, this number was then multiplied by a scalar factor of 2 to yield: \$532,824,242 	
15-year project Cost	<p>To calculate the total 15-year project cost the following calculations were used.</p> <ul style="list-style-type: none"> Total 10-year Vendor Cost= sum of the Vendor total cost (software component costs plus annual maintenance and support costs) for years 1 through 10 = \$3,327,143,519 Change management cost was assumed to be 25% given the scale and complexity of VA Change management cost= $\frac{\text{Total 10-year Vendor Cost}}{0.75} \times 0.25 = \\$1,109,047,840$ Data migration cost were determined to be \$505,382,301 with the same methodology as in Option 1: COTS. Post-Implementation Software Cost = sum of the support totals for years 11-15 = \$2,664,121,212 Prime Integrator = Software cost x (11/6) = \$1,707,933,673 VA PMO= $((10\text{-year Vendor cost} + \text{Change Management Cost} + \text{Data Migration Cost} + \text{Post-Implementation Software Cost} + \text{Prime Integrator})/0.8) \times (0.2) = \\$2,328,407,136$ Contingency was 20% of the total of 10-year Vendor cost + Change Management Cost + Data Migration Cost + Post- Implementation Software Cost + Prime Integrator + VA PMO = \$2,328,407,136 Total 15-Year Cost = \$13,970,442,816 	

12.0 Appendix E: VistA Packages

The table below provides a complete list of VistA packages. Modules specific to EHR are bolded and italicized.

Package Type	Package Name	Package Name
Clinical	Admission Discharge Transfer (ADT)	Methicillin Resistant Staph Aurerus (MRSA)
Clinical	Ambulatory Care Reporting	Mobile Electronic Documentation (MED)
Clinical	Anticoagulation Management Tool (AMT)	Mobile Scheduling Applications Suite (MBAA)
Clinical	Automated Service Connected Designation (ASCD)	Multiple Sclerosis Surveillance Registry (MSSR)
Clinical	Bar Code Expansion (BCE)	Nationwide Health Information Network Adapter (NHIN)
Clinical	Beneficiary Travel	<i>Nursing</i>
Clinical	Blind Rehabilitation	Nutrition and Food Service (NFS)
Clinical	<i>Care Management</i>	ONCOLOGY
Clinical	Clinical Case Registries	Patient Appointment Info. Transmission (PAIT)
Clinical	<i>Clinical Procedures</i>	<i>Patient Assessment Documentation Package (PADP)</i>
Clinical	Clinical/Health Data Repository (CHDR)	<i>Patient Care Encounter (PCE)</i>
Clinical	<i>Computerized Patient Record System (CPRS)</i>	Patient Centered Management Module (PCMM Web)
Clinical	<i>CPRS: Adverse Reaction Tracking (ART)</i>	<i>Patient Record Flags</i>
Clinical	<i>CPRS: Authorization Subscription Utility (ASU)</i>	Pharm: Automatic Replenish / Ward Stock (AR/WS)
Clinical	<i>CPRS: Clinical Reminders</i>	Pharm: Bar Code Medication Administration (BCMA)
Clinical	<i>CPRS: Consult/Request Tracking</i>	Pharm: Benefits Management (PBM)
Clinical	<i>CPRS: Health Summary</i>	Pharm: Consolidated Mail Outpatient Pharmacy
Clinical	<i>CPRS: Problem List</i>	Pharm: Controlled Substances
Clinical	<i>CPRS: Text Integration Utility (TIU)</i>	Pharm: Data Management (PDM)
Clinical	Dentistry	Pharm: Drug Accountability
Clinical	Electronic Wait List	Pharm: Inpatient Medications
Clinical	Emergency Department Integration Software (EDIS)	Pharm: National Drug File (NDF)
Clinical	Functional Independence Measurement (FIM)	Pharm: Outpatient Pharmacy
Clinical	Group Notes	Pharm: Prescription Practices (PPP)
Clinical	HDR - Historical (HDR-Hx)	Primary Care Management Module (PCMM)
Clinical	Health Management Platform	Prosthetics
Clinical	Home Based Primary Care (HBPC)	<i>Quality Audiology and Speech Analysis and Reporting (QUASAR)</i>
Clinical	Home Telehealth	Radiology / Nuclear Medicine
Clinical	Immunology Case Registry (ICR)	RAI/MDS
Clinical	<i>Incomplete Records Tracking (IRT)</i>	Registries Airborne Hazard Open Burn Pit (AHOBPR)
Clinical	<i>Intake and Output</i>	Registries Military Eye Vision Injury (MEVIR)
Clinical	Laboratory	Remote Order Entry System (ROES)
Clinical	Laboratory: Anatomic Pathology	Scheduling

Report on the Strategic Options for the Modernization of the Department of Veterans Affairs Electronic Health Record

Clinical	Laboratory: Blood Bank	Shift Handoff Tool
Clinical	Laboratory: Blood Bank Workarounds	Social Work
Clinical	Laboratory: Electronic Data Interchange (LEDI)	Spinal Cord Dysfunction
Clinical	Laboratory: Emerging Pathogens Initiative (EPI)	Standards & Terminology Services (STS)
Clinical	Laboratory: Howdy Computerized Phlebotomy Login Process	Surgery
Clinical	Laboratory: National Laboratory Tests (NLT) Documents and LOINC Request Form	Traumatic Brain Injury (TBI)
Clinical	Laboratory: Point of Care (POC)	Virtual Patient Record
Clinical	Laboratory: Universal Interface	VistA Imaging System
Clinical	Laboratory: VistA Blood Establishment Computer Software (VBECS)	VistAWeb
Clinical	Lexicon Utility	Visual Impairment Service Team (VIST)
Clinical	Medicine	Vitals / Measurements
Clinical	Mental Health	Women's Health
Financial-Administrative	Accounts Receivable (AR)	Hospital Inquiry (HINQ)
Financial-Administrative	Auto Safety Incident Surv Track System (ASISTS)	ICD-9-CM
Financial-Administrative	Automated Information Collection System (AICS)	IFCAP
Financial-Administrative	Automated Medical Information Exchange (AMIE)	Incident Reporting
Financial-Administrative	Bed Management Solution (BMS)	Income Verification Match (IVM)
Financial-Administrative	Clinical Monitoring System	Integrated Billing (IB)
Financial-Administrative	Compensation and Pension Record Interchange (CAPRI)	Integrated Patient Funds
Financial-Administrative	Current Procedural Terminology (CPT)	Library
Financial-Administrative	Decision Support System (DSS) Extracts	Occurrence Screen
Financial-Administrative	Diagnostic Related Group (DRG) Grouper	Patient Representative
Financial-Administrative	Electronic Claims Management Engine (ECME)	Personnel and Accounting Integrated Data (PAID)
Financial-Administrative	Engineering (AEMS / MERS)	Police and Security
Financial-Administrative	Enrollment Application System	Quality Management Integration Module
Financial-Administrative	Equipment / Turn-In Request	Record Tracking
Financial-Administrative	Event Capture System (ECS)	Release of Information (ROI) Manager
Financial-Administrative	Fee Basis	Veterans Identification Card (VIC/PICS)
Financial-Administrative	Fugitive Felon Program (FFP)	Voluntary Service System (VSS)
Financial-Administrative	Generic Code Sheet (GCS)	WebHR
Financial-Administrative	Health Eligibility Center (HEC)	Wounded Injured and Ill Warrior

Report on the Strategic Options for the Modernization of the Department of Veterans Affairs Electronic Health Record

HealtheVet	Breast Care Registry	Pharm: Medication Order Check Healthcare Application (MOCHA)
HealtheVet	Clinical Information Support System (CISS)	Pharm: Pharmacy Data Update (DATUP)
HealtheVet	Electronic Signature (ESig)	Pharm: Pharmacy Enterprise Customization System (PECS)
HealtheVet	HealtheVet Web Services Client (HWSC)	Pharm: Pharmacy Product System - National (PPS-N)
HealtheVet	MyHealtheVet	Registries
HealtheVet	National Utilization Management Integration (NUMI)	<i>Spinal Cord Injury and Disorders Outcomes (SCIDO)</i>
HealtheVet	<i>Occupational Health Record-keeping System (OHRS)</i>	VA Enrollment System (VES)
HealtheVet	Patient Advocate Tracking System (PATs)	Veterans Personal Finance System (VPFS)
HealtheVet	Person Services	VHA Point Service (Kiosks)
Infrastructure	<i>Capacity Management Tools</i>	M-to-M Broker
Infrastructure	Duplicate Record Merge: Patient Merge	Name Standardization
Infrastructure	Electronic Error and Enhancement Reporting (E3R)	National Online Information Sharing (NOIS)
Infrastructure	Enterprise Exception Log Service (EELS)	National Patch Module (NPM)
Infrastructure	FatKAAT	Network Health Exchange (NHE)
Infrastructure	FileMan	Patient Data Exchange (PDX)
Infrastructure	FileMan Delphi Components (FMDC)	Remote Procedure Call (RPC) Broker
Infrastructure	Health Data Informatics	Resource Usage Monitor (RUM)
Infrastructure	HL7 (VistA Messaging)	Single Sign on/User Context (SSO/UC)
Infrastructure	Institution File Redesign (IFR)	SlotMaster (Kernel ZSLOT)
Infrastructure	KAAJEE	SQL Interface (SQLI)
Infrastructure	Kernel	Standard Files and Tables
Infrastructure	Kernel Delphi Components (KDC)	Statistical Analysis of Global Growth (SAGG)
Infrastructure	Kernel Toolkit	Survey Generator
Infrastructure	Kernel Unwinder	System Toolkit (STK)
Infrastructure	List Manager	VistA Data Extraction Framework (VDEF)
Infrastructure	MailMan	VistA System Monitor (VSM)
Infrastructure	Master Patient Index (MPI)	VistALink
Infrastructure	Medical Domain Web Services (MDWS)	XML Parser (VistA)

From: Cashour, Curtis
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=dba510634baa46a085e28c62c254
093f-cashour, cu>
To: Sandoval, Camilo J.
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=91cab99711134d5898a778ab4685
32fc-sandoval, c>
Cc: Ullyot, John
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=c02392d86764480bb90e3854a5f3
cbbb-ullyot, joh>; Wagner, John (Wolf)
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=2ea81beb53184e9681d18d786ac9
2fe1-wagner, joh>
Bcc:
Subject: RE: EHR Modernization
Date: Thu Oct 25 2018 13:25:25 EDT
Attachments:

Cam - Please respond to his email with the following:

Thanks, Isaac. I refer you to Curt.Cashour@va.gov for comment.

From: Sandoval, Camilo J.
Sent: Thursday, October 25, 2018 12:59 PM
To: Cashour, Curtis <Curt.Cashour@va.gov>
Cc: Ullyot, John <John.Ullyot@va.gov>; Wagner, John (Wolf) <John.Wolf.Wagner@va.gov>
Subject: FW: EHR Modernization

No comment

Camilo Sandoval

202-461-6910

From: Isaac Arnsdorf [mailto:Isaac.Arnsdorf@propublica.org]
Sent: Thursday, October 25, 2018 12:43 PM
To: Sandoval, Camilo J. <Camilo.Sandoval@va.gov>
Subject: [EXTERNAL] Re: EHR Modernization

Hi Cam, just making sure you saw this. Looking forward to hearing from you. Thanks!

From: Isaac Arnsdorf <Isaac.Arnsdorf@propublica.org> on behalf of Isaac Arnsdorf <Isaac.Arnsdorf@propublica.org>
Date: Tuesday, October 23, 2018 at 1:05 PM
To: "Camilo.Sandoval@va.gov" <Camilo.Sandoval@va.gov>
Subject: EHR Modernization

Cam,

I'm interested in speaking with you for an in-depth article about the EHR modernization. My questions for you are:

1. Why did you transfer from Treasury to VA?
2. How do you know Ike Perlmutter?
3. Why do you have a standing daily call with Ike Perlmutter?
4. Why do you keep a spreadsheet tracking projects for Perlmutter?
5. Why did you tell Perlmutter that he shouldn't trust Shulkin on the Cerner contract because Shulkin was positioning himself for a post-government job? What evidence do you have to support this allegation?
6. Why did you tell people that Shulkin planned to sign the Cerner contract on March 29?
7. How did you know ahead of time that Shulkin would be fired that week?
8. Why did you become executive in charge of OI&T?
9. What experience do you have in health care IT?
10. Why did you, John Windom and Rich Stone meet about ousting Genevieve Morris?
11. Why didn't Genevieve Morris want you to come to the kickoff event?
12. Why do you walk around the office in socks or flip flops?
13. Why have you canceled speaking engagements as executive in charge?
14. Why did you move back into the CIO office from the OEHRM? What have these repeated moves cost taxpayers?

Thanks,

Isaac

Isaac Arnsdorf

ProPublica

917.512.0256

203.464.1409

From: Sandoval, Camilo J.
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=91cab99711134d5898a778ab4685
32fc-sandoval, c>
To: Cashour, Curtis
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=dba510634baa46a085e28c62c254
093f-cashour, cu>
Cc: Ullyot, John
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=c02392d86764480bb90e3854a5f3
cbbb-ullyot, joh>; Wagner, John (Wolf)
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(fydibohf23spdlt)/cn=recipients/cn=2ea81beb53184e9681d18d786ac9
2fe1-wagner, joh>
Bcc:
Subject: FW: EHR Modernization
Date: Thu Oct 25 2018 12:58:55 EDT
Attachments:

No comment

Camilo Sandoval

202-461-6910

From: Isaac Arnsdorf [mailto:Isaac.Arnsdorf@propublica.org]
Sent: Thursday, October 25, 2018 12:43 PM
To: Sandoval, Camilo J. <Camilo.Sandoval@va.gov>
Subject: [EXTERNAL] Re: EHR Modernization

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To: "Camilo.Sandoval@va.gov" <Camilo.Sandoval@va.gov>
Subject: EHR Modernization

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14. Why did you move back into the CIO office from the OEHRM? What have these repeated moves cost taxpayers?

Thanks,

Isaac

Isaac Arnsdorf

ProPublica

917.512.0256

203.464.1409

isaac@propublica.org

From: Sandoval, Camilo J.
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=91cab99711134d5898a778ab4685
32fc-sandoval, c>
To: Cashour, Curtis
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=dba510634baa46a085e28c62c254
093f-cashour, cu>; Connell, Lawrence B.
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=a3e7233376344045980ad2141223
89f4-connell, la>; Windom, John H. </o=exchangelabs/ou=exchange
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8342-windom, joh>; Stone, Richard A., MD
</o=exchangelabs/ou=exchange administrative group
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462a-stone, rich>
Cc: Ullyot, John
</o=exchangelabs/ou=exchange administrative group
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cbbb-ullyot, joh>; Hutton, James </o=exchangelabs/ou=exchange
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(fydibohf23spdlt)/cn=recipients/cn=a7da07a304d245cca9fca81fbc0d
a800-hutton, jam>; Eason, William J.
</o=exchangelabs/ou=exchange administrative group
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4422-eason, will>; Snyder, Jill </o=exchangelabs/ou=exchange
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(fydibohf23spdlt)/cn=recipients/cn=0b6e91ef72ee4a05acc63873c645
70e1-snyder, jil>; Screen, Gina </o=exchangelabs/ou=exchange
administrative group
(fydibohf23spdlt)/cn=recipients/cn=777aa6921e794e42a45a07d82357
67c5-screen, gin>
Bcc:
Subject: RE: // for approval // Interview with Secretary Wilkie about EHR implementation
Date: Thu Oct 25 2018 12:58:25 EDT
Attachments:

I'm good here

Camilo Sandoval

202-461-6910

From: Cashour, Curtis
Sent: Thursday, October 25, 2018 12:56 PM

To: Connell, Lawrence B. <Lawrence.Connell@va.gov>; Windom, John H. <John.Windom@va.gov>; Stone, Richard A., MD <Richard.Stone2@va.gov>; Sandoval, Camilo J. <Camilo.Sandoval@va.gov>
Cc: Ulyot, John <John.Ulyot@va.gov>; Hutton, James <James.Hutton@va.gov>; Eason, William J. <William.Eason@va.gov>; Snyder, Jill <Jill.Snyder@va.gov>; Screen, Gina <Gina.Screen@va.gov>
Subject: RE: // for approval // Interview with Secretary Wilkie about EHR implementation

Cam?

From: Connell, Lawrence B.
Sent: Wednesday, October 24, 2018 3:50 PM
To: Windom, John H. <John.Windom@va.gov>; Cashour, Curtis <Curt.Cashour@va.gov>; Stone, Richard A., MD <Richard.Stone2@va.gov>; Sandoval, Camilo J. <Camilo.Sandoval@va.gov>
Cc: Ulyot, John <John.Ulyot@va.gov>; Hutton, James <James.Hutton@va.gov>; Eason, William J. <William.Eason@va.gov>; Snyder, Jill <Jill.Snyder@va.gov>; Screen, Gina <Gina.Screen@va.gov>
Subject: RE: // for approval // Interview with Secretary Wilkie about EHR implementation

My only comment would be to change "tall tales" to read "false statements" or "inaccurate statements"

My \$.02.

Larry Connell

Chief of Staff

Veterans' Health Administration

lawrence.connell@va.gov

202.461.7016

From: Windom, John H.
Sent: Wednesday, October 24, 2018 3:07 PM
To: Cashour, Curtis <Curt.Cashour@va.gov>; Stone, Richard A., MD <Richard.Stone2@va.gov>; Sandoval, Camilo J. <Camilo.Sandoval@va.gov>
Cc: Connell, Lawrence B. <Lawrence.Connell@va.gov>; Ulyot, John <John.Ulyot@va.gov>; Hutton, James <James.Hutton@va.gov>; Eason, William J. <William.Eason@va.gov>; Snyder, Jill <Jill.Snyder@va.gov>; Screen, Gina <Gina.Screen@va.gov>
Subject: RE: // for approval // Interview with Secretary Wilkie about EHR implementation

Reads fine to me. Thank you.

Vr
John

Sent with Good (www.good.com)

From: Cashour, Curtis
Sent: Wednesday, October 24, 2018 9:26:03 AM
To: Stone, Richard A., MD; Sandoval, Camilo J.; Windom, John H.
Cc: Connell, Lawrence B.; Ulyot, John; Hutton, James; Eason, William J.; Snyder, Jill; Screen, Gina
Subject: // for approval // Interview with Secretary Wilkie about EHR implementation

Folks - Please see below from ProPublica. The reporter has asked for interviews with SecVA, Cam, and Dr. Stone. In lieu of interviews, we recommend the below. Let us know if you have any issues or edits. Thanks.

We welcome the opportunity to discuss any allegations from named current or former employees. But due to Privacy Act restrictions, in order to comment on specific complaints from any current or former employees, we would need their written consent (by having them fill out and return this form) to discuss all aspects of their job performance.

Can you provide that consent? If you cannot, please note in your story that those making these allegations refused to allow VA to comment on them.

Allegation: The article will be an in-depth look at the dysfunction and turmoil that are undermining the VA's effort to transform its electronic health records.

Response: The premise of your article is false.

VA's electronic health record modernization (EHRM) efforts thus far have been successful and we are confident they will continue to be successful. While that may not comport with the tall tales you are hearing from disgruntled former employees, all of those people – whether they left by choice or not – no longer work at VA for a reason.

VA has made a historic decision to modernize its electronic health record system to provide our nation's Veterans with seamless care as they transition from military service to Veteran status and when they choose to use community care.

While past administrations and VA secretaries failed to achieve this longstanding goal, the Trump

administration and Secretary Wilkie succeeded.

VA established the Office of Electronic Health Record Modernization (OEHRM) to ensure VA successfully prepares for, deploys and maintains the new EHR solution and the health IT tools dependent upon it.

The OEHRM Executive Director is Mr. John Windom, who has been with the effort since its inception and has the necessary expertise and institutional knowledge to lead this initiative effectively.

Prior to joining VA, Windom was a program manager for the Program Executive Office of the Defense Healthcare Management Systems (DHMS).

He led his team to acquire, test, integrate and deploy a new EHR to replace DoD's legacy system in support of over 9.6 million military service members and other beneficiaries.

As Secretary Wilkie has said, "The new EHR system will be interoperable with DOD, while also improving VA's ability to collaborate and share information with community care providers. This will ease the burden on service members as they transition from military careers and will be supported by multiple medical providers throughout their lives.

"The EHR will give health care providers a full picture of patient medical history, driving better clinical outcomes. It will also help us identify Veterans proactively who are at higher risk for issues, such as opioid addiction and suicide, so health care providers can intervene earlier and save lives."

Curt Cashour

Press Secretary

Department of Veterans Affairs

202-461-7388

Curt.Cashour@va.gov

@curtcashour

From: Isaac Arnsdorf [mailto:Isaac.Arnsdorf@propublica.org]

Sent: Tuesday, October 23, 2018 1:04 PM

To: Cashour, Curtis <Curt.Cashour@va.gov>

Cc: Snyder, Jill <Jill.Snyder@va.gov>

Subject: [EXTERNAL] Re: Interview with Secretary Wilkie about EHR implementation

Hi Curt,

Nice to hear from you again.

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Thanks,

Isaac

Isaac Arnsdorf

ProPublica

917.512.0256

203.464.1409

isaac@propublica.org

From: "Cashour, Curtis" <Curt.Cashour@va.gov>
Date: Monday, October 22, 2018 at 10:30 AM
To: Isaac Arnsdorf <Isaac.Arnsdorf@propublica.org>
Subject: RE: Interview with Secretary Wilkie about EHR implementation

Hi, Isaac.

What are your findings?

What questions do you have?

Thanks,

Curt Cashour

Press Secretary

Department of Veterans Affairs

202-461-7388

Curt.Cashour@va.gov

@curtcashour

From: Isaac Arnsdorf [mailto:Isaac.Arnsdorf@propublica.org]
Sent: Monday, October 22, 2018 9:51 AM
To: VA Public Affairs <VAPublicAffairs@va.gov>; VA Public Affairs <VAPublicAffairs@va.gov>
Cc: Cashour, Curtis <Curt.Cashour@va.gov>
Subject: [EXTERNAL] Interview with Secretary Wilkie about EHR implementation

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(fydibohf23spdlt)/cn=recipients/cn=dba510634baa46a085e28c62c254
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To: Connell, Lawrence B.
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67c5-screen, gin>
Bcc:
Subject: RE: // for approval // Interview with Secretary Wilkie about EHR implementation
Date: Thu Oct 25 2018 12:55:40 EDT
Attachments:

Cam?

From: Connell, Lawrence B.
Sent: Wednesday, October 24, 2018 3:50 PM
To: Windom, John H. <John.Windom@va.gov>; Cashour, Curtis <Curt.Cashour@va.gov>; Stone,
Richard A., MD <Richard.Stone2@va.gov>; Sandoval, Camilo J. <Camilo.Sandoval@va.gov>
Cc: Ullyot, John <John.Ullyot@va.gov>; Hutton, James <James.Hutton@va.gov>; Eason, William J.
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We welcome the opportunity to discuss any allegations from named current or former employees. But due to Privacy Act restrictions, in order to comment on specific complaints from any current or former employees, we would need their written consent (by having them fill out and return this form) to discuss all aspects of their job performance.

Can you provide that consent? If you cannot, please note in your story that those making these allegations refused to allow VA to comment on them.

Allegation: The article will be an in-depth look at the dysfunction and turmoil that are undermining the VA's effort to transform its electronic health records.

Response: The premise of your article is false.

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VA has made a historic decision to modernize its electronic health record system to provide our nation's Veterans with seamless care as they transition from military service to Veteran status and when they choose to use community care.

While past administrations and VA secretaries failed to achieve this longstanding goal, the Trump administration and Secretary Wilkie succeeded.

VA established the Office of Electronic Health Record Modernization (OEHRM) to ensure VA successfully prepares for, deploys and maintains the new EHR solution and the health IT tools dependent upon it.

The OEHRM Executive Director is Mr. John Windom, who has been with the effort since its inception and has the necessary expertise and institutional knowledge to lead this initiative effectively.

Prior to joining VA, Windom was a program manager for the Program Executive Office of the Defense Healthcare Management Systems (DHMS).

He led his team to acquire, test, integrate and deploy a new EHR to replace DoD's legacy system in support of over 9.6 million military service members and other beneficiaries.

As Secretary Wilkie has said, "The new EHR system will be interoperable with DOD, while also improving VA's ability to collaborate and share information with community care providers. This will ease the burden on service members as they transition from military careers and will be supported by multiple medical providers throughout their lives.

"The EHR will give health care providers a full picture of patient medical history, driving better clinical outcomes. It will also help us identify Veterans proactively who are at higher risk for issues, such as opioid addiction and suicide, so health care providers can intervene earlier and save lives."

Curt Cashour

Press Secretary

Department of Veterans Affairs

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Curt.Cashour@va.gov

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From: Isaac Arnsdorf [mailto:Isaac.Arnsdorf@propublica.org]

Sent: Tuesday, October 23, 2018 1:04 PM

To: Cashour, Curtis <Curt.Cashour@va.gov>

Cc: Snyder, Jill <Jill.Snyder@va.gov>

Subject: [EXTERNAL] Re: Interview with Secretary Wilkie about EHR implementation

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Isaac Arnsdorf

ProPublica

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isaac@propublica.org

From: "Cashour, Curtis" <Curt.Cashour@va.gov>

Date: Monday, October 22, 2018 at 10:30 AM

To: Isaac Arnsdorf <Isaac.Arnsdorf@propublica.org>

Subject: RE: Interview with Secretary Wilkie about EHR implementation

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From: Isaac Arnsdorf
<isaac.arnsdorf@propublica.org>
To: Sandoval, Camilo J.
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=91cab99711134d5898a778ab4685
32fc-sandoval, c>
Cc:
Bcc:
Subject: [EXTERNAL] Re: EHR Modernization
Date: Thu Oct 25 2018 12:42:55 EDT
Attachments:

Hi Cam, just making sure you saw this. Looking forward to hearing from you. Thanks!

From: Isaac Arnsdorf <Isaac.Arnsdorf@propublica.org> on behalf of Isaac Arnsdorf <Isaac.Arnsdorf@propublica.org>
Date: Tuesday, October 23, 2018 at 1:05 PM
To: "Camilo.Sandoval@va.gov" <Camilo.Sandoval@va.gov>
Subject: EHR Modernization

Cam,

I'm interested in speaking with you for an in-depth article about the EHR modernization. My questions for you are:

- 1.Why did you transfer from Treasury to VA?
- 2.How do you know Ike Perlmutter?
- 3.Why do you have a standing daily call with Ike Perlmutter?
- 4.Why do you keep a spreadsheet tracking projects for Perlmutter?
- 5.Why did you tell Perlmutter that he shouldn't trust Shulkin on the Cerner contract because Shulkin was positioning himself for a post-government job? What evidence do you have to support this allegation?
- 6.Why did you tell people that Shulkin planned to sign the Cerner contract on March 29?
- 7.How did you know ahead of time that Shulkin would be fired that week?
- 8.Why did you become executive in charge of OI&T?
- 9.What experience do you have in health care IT?
- 10.Why did you, John Windom and Rich Stone meet about ousting Genevieve Morris?
- 11.Why didn't Genevieve Morris want you to come to the kickoff event?
- 12.Why do you walk around the office in socks or flip flops?
- 13.Why have you canceled speaking engagements as executive in charge?
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67c5-screen, gin>
Bcc:
Subject: RE: // for approval // Interview with Secretary Wilkie about EHR implementation
Date: Wed Oct 24 2018 15:50:16 EDT
Attachments:

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Curt Cashour

Press Secretary

Department of Veterans Affairs

202-461-7388

Curt.Cashour@va.gov

@curtcashour

From: Isaac Arnsdorf [mailto:Isaac.Arnsdorf@propublica.org]

Sent: Tuesday, October 23, 2018 1:04 PM

To: Cashour, Curtis <Curt.Cashour@va.gov>

Cc: Snyder, Jill <Jill.Snyder@va.gov>

Subject: [EXTERNAL] Re: Interview with Secretary Wilkie about EHR implementation

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From: Windom, John H.
</o=exchangelabs/ou=exchange administrative group
(fydibohf23spdlt)/cn=recipients/cn=43f78d00b4a04d0492dbbf83ea18
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</o=exchangelabs/ou=exchange administrative group
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67c5-screen, gin>
Bcc:
Subject: RE: // for approval // Interview with Secretary Wilkie about EHR implementation
Date: Wed Oct 24 2018 15:07:08 EDT
Attachments:

Reads fine to me. Thank you.

Vr
John

Sent with Good (www.good.com)

From: Cashour, Curtis
Sent: Wednesday, October 24, 2018 9:26:03 AM
To: Stone, Richard A., MD; Sandoval, Camilo J.; Windom, John H.

Cc: Connell, Lawrence B.; Ulliot, John; Hutton, James; Eason, William J.; Snyder, Jill; Screen, Gina
Subject: // for approval // Interview with Secretary Wilkie about EHR implementation

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We welcome the opportunity to discuss any allegations from named current or former employees. But due to Privacy Act restrictions, in order to comment on specific complaints from any current or former employees, we would need their written consent (by having them fill out and return this form) to discuss all aspects of their job performance.

Can you provide that consent? If you cannot, please note in your story that those making these allegations refused to allow VA to comment on them.

Allegation: The article will be an in-depth look at the dysfunction and turmoil that are undermining the VA's effort to transform its electronic health records.

Response: The premise of your article is false.

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While past administrations and VA secretaries failed to achieve this longstanding goal, the Trump administration and Secretary Wilkie succeeded.

VA established the Office of Electronic Health Record Modernization (OEHRM) to ensure VA successfully prepares for, deploys and maintains the new EHR solution and the health IT tools dependent upon it.

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To: Stone, Richard A., MD
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Bcc:
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462a-stone, rich>
Bcc:
Subject: RE: Interview with Secretary Wilkie about EHR implementation
Date: Wed Oct 24 2018 11:26:36 EDT
Attachments:

Thank you fir sharing. I did not realize my selection was based on a truce. I have far more power than I ever imagined. For the record and as you know, I serve at the pleasure of the Secretary and VA leadership. No false sense of power here.

Vr
John

Sent with Good (www.good.com)

From: Tucker, Brooks
Sent: Wednesday, October 24, 2018 7:12:52 AM
To: Windom, John H.; Byrne, Jim; Powers, Pamela
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Mobile: (202) 794-4911

Executive Assistant: Ms. (b)(6) – Appointments and Scheduling

(b)(6)@va.gov Office: 202-382-3792

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462a-stone, rich>; Tucker, Brooks </o=exchangelabs/ou=exchange
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(fydibohf23spdlt)/cn=recipients/cn=24ae47cff629405aa8557cc2cc79
2903-tucker, bro>
Bcc:
Subject: FW: Interview with Secretary Wilkie about EHR implementation
Date: Wed Oct 24 2018 07:15:59 EDT
Attachments:

DEPSEC/CoS:

The Hill engagements went very well yesterday. Congressman Banks made a surprise visit to the second two hour session accompanying Bill Mallison and stayed for about an hour. The DoD Politico article came up as did the Joint Memorandum. I believe we addressed both very well. Overall, I do not believe our sessions could have gone much better. Thank you for your leadership and comments during the prep session Monday.

I received the below questions from my Comms lead while on the Hill yesterday, and after reviewing do not believe we should respond to a single one of the questions. Clearly a compilation of rhetoric, untruths, inaccuracies and the comments from disgruntled/angry people. I literally find all of the questions to be without truth or accuracy. I served on six Navy ships and deployed on the ground to Iraq twice in my 34 year Naval career, and cannot remember an assault by the enemy as divisive as what appears to be comments fueled by present or past employees.

Thank you for your confidence in my leadership and unwavering support of my efforts and the efforts of the OEHRM team. We will continue to you press forward. It is great to be on the side of RIGHT!

Very respectfully,

John

John H. Windom, Senior Executive Service (SES)

Office of Electronic Health Record Modernization (OEHRM)

811 Vermont Avenue NW (5th Floor Suite 5080)

Washington, DC 20420

John.Windom@va.gov

Office: (202) 461-5820

Mobile: (b)(6)

Executive Assistant: Ms. (b)(6) – Appointments and Scheduling

(b)(6)@va.gov Office: 202-382-3792

From: Snyder, Jill

Sent: Tuesday, October 23, 2018 1:31 PM

To: Windom, John H. <John.Windom@va.gov>

Cc: Snyder, Jill <Jill.Snyder@va.gov>

Subject: FW: Interview with Secretary Wilkie about EHR implementation

Mr. Windom,

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Thanks,

Jill

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Sent: Tuesday, October 23, 2018 1:04 PM
To: Cashour, Curtis <Curt.Cashour@va.gov>
Cc: Snyder, Jill <Jill.Snyder@va.gov>
Subject: [EXTERNAL] Re: Interview with Secretary Wilkie about EHR implementation

Hi Curt,

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I will direct questions to you for Secretary Wilkie, Dr. Stone and John Windom.

The article will be an in-depth look at the dysfunction and turmoil that are undermining the VA's effort to transform its electronic health records. As a recent internal progress report said, the program is "Yellow trending towards Red."

1. Discussing his April 20 meeting with Ike Perlmutter, Bruce Moskowitz and Marc Sherman, why did Secretary Wilkie tell senators he "went against their wishes, because I approved it," when they were not opposed to the EHR modernization — in fact, they were the ones who set the process in motion?
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14. When the VA asked Cerner to assess the overlap between the two departments' needs, why did Cerner instead assess DoD's adherence to Cerner's commercial baselines?

15. Why did Cerner's cost and schedule estimates assume the VA would match the DoD's implementation?

16. Why would the VA import the DoD's workflows when the DoD's workflows failed at the DoD's IOC sites?

17. How is the VA learning from the DoD's mistakes? For example, how will routing trouble tickets directly to Cerner solve the problem of overwhelming volume and lack of on-site support?

18. How is the VA addressing Cerner's lack of functionality for some of VA's core specialties such as Agent Orange exposure, spinal cord injury, PTSD and military sexual trauma?

19. How is the VA addressing Cerner's functionality in other areas, such as optometry and telehealth, that DoD and VA clinicians have identified as inadequate?

20. How is the VA addressing the fact that DoD's cyber security specifications will interfere with some of Cerner's usability functions? Is the VA still planning to match DoD's cyber security specifications?

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isaac@propublica.org

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Date: Monday, October 22, 2018 at 10:30 AM

To: Isaac Arnsdorf <Isaac.Arnsdorf@propublica.org>

Subject: RE: Interview with Secretary Wilkie about EHR implementation

Hi, Isaac.

What are your findings?

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Thanks,

Curt Cashour

Press Secretary

Department of Veterans Affairs

202-461-7388

Curt.Cashour@va.gov

@curtcashour

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To: VA Public Affairs <VAPublicAffairs@va.gov>; VA Public Affairs <VAPublicAffairs@va.gov>
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Cc:
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Subject: FW: Interview with Secretary Wilkie about EHR implementation
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Attachments:

Fyi.

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From: "Cashour, Curtis" <Curt.Cashour@va.gov>
Date: Monday, October 22, 2018 at 10:30 AM
To: Isaac Arnsdorf <Isaac.Arnsdorf@propublica.org>
Subject: RE: Interview with Secretary Wilkie about EHR implementation

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Press Secretary
Department of Veterans Affairs
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Curt.Cashour@va.gov
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8342-windom, joh>
Cc:
Bcc:
Subject: FW: EHR Modernization
Date: Tue Oct 23 2018 20:53:02 EDT
Attachments:

#12 is the best one ♀

Camilo Sandoval
917-544-1298

From: Sandoval, Camilo J.
Sent: Tuesday, October 23, 2018 3:47:12 PM
To: Cashour, Curtis
Cc: Ulyot, John; Wagner, John (Wolf)
Subject: FW: EHR Modernization

Curtis—

Possibly coming your way... and as always no comment.

Thanks

Camilo

From: Isaac Arnsdorf [mailto:Isaac.Arnsdorf@propublica.org]
Sent: Tuesday, October 23, 2018 1:05 PM
To: Sandoval, Camilo J. <Camilo.Sandoval@va.gov>
Subject: [EXTERNAL] EHR Modernization

Cam,

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2fe1-wagner, joh>
Bcc:
Subject: FW: EHR Modernization
Date: Tue Oct 23 2018 18:47:12 EDT
Attachments:

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2fe1-wagner, joh>; Powers, Pamela </o=exchangelabs/ou=exchange
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(fydibohf23spdlt)/cn=recipients/cn=f6021d9c02594b52bc57194848ca
7ef6-powers, pam>
Bcc:
Subject: FW: EHR Modernization
Date: Tue Oct 23 2018 18:42:40 EDT
Attachments:

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Bcc:
Subject: Mitre Report
Date: Sun Oct 14 2018 17:15:58 EDT
Attachments: VA EHRM Interoperability Review Report Jan 2018 FINAL.PDF

Drew—

Not sure if I shared or if you have seen this report previously. It's a little dated (pre Cerner acquisition), but the topics are still valid. Also, Bill may have mentioned that last week in Kansas City we met with folks from CareQuality and CommonWell. I foresee in the very near future a meeting (led by you in November:) where we invite all the key stakeholders internally (OEHRM, VHA, VBA, NCA) and externally (HHS, CMS, DoD, IPO, WH, Cerner + their HIE's) to discuss strategy and roadmap to achieve national interoperability.

Very exciting stuff... look forward to supporting you lead this effort. Please let me know how I can help.

Thanks

Camilo

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Document ID: 0.7.1705.30470-000001

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=vacosandoc>

Filename: VA EHRM Interoperability Review Report Jan 2018 FINAL.PDF

Last Modified: Sun Oct 14 16:15:58 CDT 2018

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Department of Veterans Affairs Electronic Health Modernization

Request for Proposal Interoperability Review Report



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**McLean, VA
January 2018**

Sponsor:
Department of Veterans Affairs

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VA EHRM RFP Interoperability Review Report

January 31, 2018

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Executive Summary

This Review Report presents responses to three requests from the Department of Veterans Affairs (VA) to MITRE related to the topic of interoperability within the VA Electronic Health Record Modernization Request for Proposal:

- I. Conduct an external Interoperability Review Panel to review the interoperability language in the existing Request for Proposal (RFP),
- II. Engage an independent and unbiased legal expert to identify the specific changes to the RFP language necessary to implement the recommendations from the Interoperability Review Panel, and
- III. Visit the University of Pittsburgh Medical Center to understand the existing operational multi-vendor solution and interoperability solutions for applicability and scalability to the VA.

I. Interoperability Review Panel

In support of the Secretary of Veterans Affairs, David J. Shulkin, M.D., The MITRE Corporation convened and hosted a VA Electronic Health Record Modernization (EHRM) Request for Proposal (RFP) Interoperability Review Panel on January 5, 2018, at MITRE's McLean headquarters. The invited external senior electronic health record (EHR) interoperability subject matter experts (the Panel) reviewed the interoperability language in the existing RFP and developed joint suggestions and recommendations for VA to consider for incorporation to support the successful execution of a new commercial EHR contract with industry. The Panel affirmed that the primary goal should be seamless Veteran-centric healthcare achieved through true EHR interoperability. Achieving this goal rests on three overarching principles that should be supported by interoperability language in the RFP: 1) free and open access to data, 2) an ecosystem that provides fair access to third parties by creating a level playing field, and 3) a seamless Veteran and health provider (clinician) experience. Four categories of recommendations from the Panel (the first three to the interoperability language in the RFP, and the fourth for future VA contracts) will enable VA to realize this goal on the basis of the underlying principles: 1) commit to full VA-Department of Defense (DoD) interoperability, 2) leverage current and future standards, 3) commit to open, standards-based application programming interfaces (APIs), and 4) use Care in the Community contracts to foster interoperability.

For the first category (commit to full VA-DoD interoperability), the Panel agreed that the Determination and Findings signed by Secretary Shulkin on June 1, 2017, represented the correct approach to interoperability within VA and between VA and DoD. The Panel strongly endorsed the proposed VA "API Gateway" language. The most important specific recommendations included:

- Define the degree of interoperability the solution will provide, ranging from basic file sharing to fully interchangeable, integrated and functionally identical patient records.

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Suggest that the Contractor conduct an annual Interoperability Self-Assessment against current and future standards that shall be specified by the VA; and

- The contract language should include the following elements:
 - performance measures to hold Cerner accountable for reducing the administrative burden in clinician workflow with the objective of increasing efficiency,
 - ability for bulk data export based on standards, with no proprietary formats (e.g., Flat FHIR [Fast Healthcare Interoperability Resources]), and
 - “push” capability to insert patient data back into the VA EHR / Cerner database.

For the second category (leverage current and future standards), the following specific recommendations were among the most important:

- Require that Cerner implement all standards as defined by VA, current and future,
- Engage Cerner as an advocate of the VA and DoD position in all relevant standards-making bodies, and
- Ensure that VA and Veterans have complete access to data.

For the third category (commit to open, standards-based APIs), the Panel voiced the following recommendations:

- Establish clear publishing and access service requirements,
- Provide a VA application platform that supports APIs from third party providers with no barrier to entry, and
- Require implementation of clinical decision support (CDS) Hooks to invoke decision support from within a clinician's EHR workflow.

The body of this report contains multiple additional specific recommendations.

II. Recommendations for RFP Changes

MITRE engaged Morrison & Foerster, LLP as the independent and unbiased legal expert to identify the specific changes to the RFP language necessary to implement the recommendations from the Interoperability Review Panel. Appendix C presents all recommended changes to the RFP.

III. Observations from University of Pittsburgh Medical Center Site Visit

A delegation from VA and MITRE traveled to Pittsburgh, Pennsylvania, on January 19, 2018, for a meeting with representatives from University of Pittsburgh Medical Center (UPMC) Enterprises to discuss aspects of EHR interoperability that UPMC has successfully implemented over the past several years. The report includes an overview of those practices.

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IV. Closing Thoughts and Suggested Next Steps

The Panelists noted that VA cannot achieve true future EHR interoperability through the Cerner RFP alone, or through technology alone. The state of practice today shares only a small portion of available patient data. For VA to succeed in the future, multiple other components must be present and aligned: innovation, policy, standards, customer buy-in, and legislation, to name a few.

The following next steps are recommended for VA consideration:

1. Complete the RFP revisions, conduct appropriate negotiations with the Contractor expeditiously, and complete the contract process as planned. Stand firm during negotiations to maximize ease of access to data and data models for building third party APIs, applications, and services for future community innovations.
2. Continue to work with other federal government agencies and departments with similar interoperability interests and concerns, including, but not limited to, the White House, DoD, Food and Drug Administration (FDA), Centers for Medicare and Medicaid Services (CMS), Office of the National Coordinator for Health Information Technology (ONC), and other parts of the Department of Health and Human Services, to align approaches to EHR interoperability and the development and support of standards government-wide.
3. Support future innovation approaches, including concepts such as an Interoperability Laboratory and outreach to the broader innovation ecosystem (major medical centers, academia, traditional and non-traditional healthcare providers, startups, individual entrepreneurs, others). It is critical to align the innovations planned in VA's Digital Veterans Platform to the VA EHR innovation efforts to ensure consistent continuous improvements to clinician and Veteran health experiences.
4. Create an External Review Panel to provide expert continuous guidance, review, and feedback over the course of the implementation, to help capture best practices from the expert community going forward. Conduct ongoing demonstrations of end-to-end Veteran use cases requiring data sharing across organizational boundaries to validate improvements in Veteran healthcare and reduction of burden for healthcare providers. VA and Contractor will ensure that Federal Advisory Committee Act (FACA) guidelines are followed in leveraging any external review panels.

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Background

The Department of Veterans Affairs (VA) plans to establish seamless care for Veterans throughout the health care provider market. Seamless care requires interoperability between the Department of Defense (DoD), VA, VA affiliates, community partners, electronic health record (EHR) providers, healthcare providers, and vendors. VA directed The MITRE Corporation to independently review the capability of Cerner's proposed EHR solution to seamlessly transmit health records between EHR systems supporting healthcare providers who both use and contribute patient data to a Veteran's health record, to include Veterans Choice Program (VCP) community-care service providers and VA affiliates. This Review Report presents responses to three requests:

- I. Conduct an external Interoperability Review Panel to review the interoperability language in the existing Request for Proposal (RFP),
- II. Engage an independent and unbiased legal expert to identify the specific changes to the RFP language necessary to implement the recommendations from the Interoperability Review Panel, and
- III. Visit the University of Pittsburgh Medical Center to understand the existing operational multi-vendor solution and interoperability solutions for applicability and scalability to VA.

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I. Interoperability Review Panel

Introduction

In support of the Secretary of Veterans Affairs, David J. Shulkin, M.D., MITRE convened and hosted a VA Electronic Health Record Modernization (EHRM) Request for Proposal (RFP) Interoperability Review Panel on January 5, 2018, at MITRE's McLean, VA headquarters. MITRE invited external senior EHR interoperability subject matter experts (hereafter referred to as Panelists) to review the interoperability language in the existing RFP and to develop joint suggestions and recommendations for VA to consider incorporating into the RFP to support the successful execution of a new commercial EHR contract with industry. Eleven Panelists took part in person, and several senior government executives observed the process (see Appendix A for the full list of participants).

Goal

The Interoperability Review Panel sought to provide Secretary Shulkin and his senior leadership team with insights into key best practices and guidance from national experts regarding EHR interoperability. The Panel evaluated the corresponding language in the draft RFP based on successful business transformations and implementations of a new commercial EHR system across a distributed hospital and provider network. This section of the report summarizes the outcome of the Panel: expert recommendations that will inform VA's interoperability contract language. The document also provides actionable and specific best practice recommendations and rationales to enable successful acquisition and implementation of EHR interoperability.

Methodology/Approach

The first part of the session, which lasted for five hours, was conducted as a fish-bowl exercise and was guided by Chatham House Rule. The Panelists sat at a center table, with VA and other government observers sitting at surrounding tables. The second part, which lasted two hours, consisted of a summary debrief to the Secretary and senior VA leadership. The Secretary could ask questions and engage with the Panel throughout the second session. MITRE moderated the session to elicit inputs from all Panelists and to drive alignment toward consensus in the recommendations.

The agenda for the first portion of the session was structured to elicit inputs from all Panelists, with notes captured on-screen as redlines to the RFP interoperability language to ensure recommendations accurately reflected the Panelists' contributions. Subsequently, in a facilitated discussion, the Panelists grouped their recommendations into specific categories in real time. The second portion, as noted, provided opportunities for the Secretary to discuss the recommendations in additional detail.

This section of the report summarizes the discussion that took place. It highlights actionable changes to the interoperability language contained in the RFP and additional recommendations and lessons learned that can enable interoperability of the VA EHRM solution. Text boxes

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throughout the report present direct quotations from Panelists. To ensure participant confidentiality, MITRE has destroyed the transcript and event recording used to develop this report.

Topic Area: VA Definition of Interoperability

The key to modernization is creating greater interoperability with Governmental partners, including DoD, in a way that focuses efforts in support of the Veteran's journey, beginning with their military service. We will partner with others to ensure Veterans can get their benefits, care, and services consistently, easily, and with excellent customer service, no matter where they are throughout their lives. VA will work with local communities, and with other Federal, State, Tribal, and Local Government entities to ensure Veterans get what they need. VA will also continue to leverage the private sector where appropriate and needed to deliver the very best outcomes for Veterans.

– draft VA 2018–2024 Strategic Plan

Enable data sharing, interoperability, and agility through data standardization

VA needs to allow data sharing among various business applications, such as appointment scheduling and business intelligence, as well as ensure transportability of information between sites. Panelists advised VA to leverage and support the best-in-class innovation currently in use within the VA culture. VA must also enable interoperability as the Department integrates the EHR into other supporting systems, both within the VA network and with external health service providers. Agility is necessary for adoption of future innovative technologies and/or if VA wants to upgrade or change the EHR approach. The Panelists cautioned that the current EHR technology is already 20 years old and, as with all industries and information technology (IT) solutions, many possibly disruptive technologies exist on the horizon.

"It really optimizes transportability of best practices, because if you are trying to transfer best practices from one site to another and you have the same system where the best practice is going to land, then it is much easier."

The session began with a discussion on interoperability as currently defined by VA (Figure 1). Prior to establishing a roadmap to inform a nationwide plan to advance health data interoperability, VA must first ensure system-wide interoperability across the Department. Throughout the Review Panel session, the Panelists described and referred to this concept as "Level 1 Interoperability" throughout the Review Panel session; it includes migration of Veteran data from ~130 instances of the Veterans Health Information Systems and Technology Architecture (VistA) to one VA platform.

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Figure 1. VA Definition of EHR Interoperability

“Level 2 Interoperability,” as described in the Panel discussion, addresses the ability for VA to leverage the same Cerner platform used by DoD to ensure seamless care from active service to Veteran status. Once this capability is implemented, the clinical data transformation will allow a true longitudinal view of a Veteran’s record as he or she transitions from DoD to VA for care and other critical services such as benefit adjudication.

“Level 3 Interoperability” will allow both VA and DoD to take an important step toward transforming electronic patient data exchange on a national scale. With the utilization of community healthcare providers via the VA Community of Care initiative and DoD’s Tricare network providers, VA has the opportunity to drive interoperability between DoD and VA as well as with the extensive network of healthcare providers that serve our Nation’s Veterans, active duty service members, and their beneficiaries.

True nationwide EHR interoperability for the entire United States is the ultimate goal, and the Panelists agreed that VA and DoD could reach this goal if the three aforementioned levels of interoperability are achieved. Here, VA has the opportunity to drive clinical transformation and instantiation of a complete EHR for all patients at the national level.

Topic Area: Commit to Full VA-DoD Interoperability

The Panel focused primarily on reviewing the interoperability language within the RFP for the Cerner contract. However as described in Interoperability Levels 1 and 2, the commitment to the seamless integration of VA and DoD health data represents the foundation required to realize interoperability with private sector

“You really have to get the basics done first. Let's just make absolutely sure that the interoperability between DoD and VA [is achieved].”

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healthcare providers.¹ It is important to note that the interoperability levels can be addressed simultaneously and should not be separated, as they must be integrated to efficiently achieve the larger future data sharing ecosystem.

Specify the expectations for interoperability between DoD and VA

During discussions about the expectation that Cerner will provide a single EHR solution to be shared by both DoD and VA, the Panel raised concerns about the lack of specificity in the contract language. Current interoperability data standards address a subset of the Veteran's clinical record and VA has the opportunity to ensure Cerner provides interoperability of all discrete data, at a minimum, between VA and DoD. Adopting the same platform would increase seamless sharing, but the Panel stated that VA should take additional action to ensure that such sharing is realized. The DoD and VA systems should use proprietary database-to-database interoperability if necessary, to maximize interoperability between those two systems. These systems should be configured to meet the distinct needs of each while being connected to each other in a native database-to-database method as necessary, leveraging open interoperability standards wherever possible. As a result, clinicians should experience no differences when they move from a VA system to a DoD system. These data should also be computable, or be made computable according to a specific schedule. VA should consider adding language to the RFP that specifically defines the degree of interoperability the solution will provide, ranging from basic file sharing to fully interchangeable, integrated and functionally identical patient records.

The Panelists also stated that, for VA and DoD collectively, the contractual language should include the following requirements:

- Performance measures to hold Cerner accountable for reducing the administrative burden in clinician workflow with the objective of increasing efficiency
- Capability for bulk data export based on standards, with no proprietary formats (e.g., Flat FHIR [Fast Healthcare Interoperability Resources])
- “Push” capability to insert new patient data back into the VA EHR / Cerner database.

Pivot the RFP to be Veteran-centric and not system-centric

The Panelists discussed the impact of EHR implementations on clinician workflow, describing the issue as one of approaching the implementation as an IT system implementation rather than the preferred Veteran- or clinician-centric implementation. The current RFP appears to be written in a system-centric way rather than leveraging use-cases to describe the Veteran or clinician experience or workflow to characterize the requirement. The Panelists recommended that VA incorporate use-cases to characterize requirements and amend the RFP language to emphasize the Veteran-centric objectives. In addition, Panelists noted that VA should recognize that EHRs do not currently maximize efficient clinical workflow, and that VA specify that the

¹ Healthcare providers is used to refer to community based physicians/specialist and hospitals.

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solution present clinicians with relevant information where needed with a minimum number of “clicks to find.”

Topic Area: Leverage Current and Future Standards

The integrated EHR platform that DoD and VA are implementing provides the opportunity to significantly influence interoperability standards across the healthcare community, addressing gaps and competition among current standards. The Panel recognized that commercial health systems and technologies would realize only limited business value from making data portable between them, but this would lower the barrier to patient movement among healthcare providers.

Engage Cerner as an advocate of the VA and DoD position in all relevant standards-making bodies

The Panel recommended increased VA presence and leadership in national health IT standards-making activities, in coordination with the DoD. Additionally, VA should encourage Cerner to serve as an active advocate of the VA-DoD position and to participate actively in the development and/or evaluation of new standards, policy directives, operating procedures, processes, etc. As an integrated voting bloc, VA, DoD, and Cerner will have the potential to act as a strong driver of national standards. Panelists understood that VA is not currently active in the FHIR community or in the Health Level Seven International (HL7) Argonaut Project.

In addition, Panelists identified a need for standards to exchange patient-reported outcome data for integration into the clinician’s workflow. The current RFP language seemingly puts the burden on Cerner for the development of standards, and the Panel recommended that VA take a more active position. This will ensure that VA will participate and drive implementation when standards mature. Where standards are immature, VA must participate in efforts to accelerate standardization.

Require Cerner to implement all standards as defined by VA, current and future

Because it is unclear where health IT is heading in five years, the Panel strongly suggested VA include contract language to address possible future advancements in the form of standards as defined by VA. At a minimum, VA should seek maximum interoperability with community care organizations, using open interoperability standards wherever possible. This flexibility would ensure that VA does not rely on external stakeholders to determine the standards that VA would be required to accept. The Panel recommended that VA pay particular attention to specific categories of standards: real-time data read/write by care providers and Veterans; interoperability tools; seamless DoD and VA vision records; and principles for data normalization and structure. The Panel also recognized Cerner’s influence in ensuring that the CommonWell network interoperates at the highest possible levels with other networks including CareQuality—an influence that VA should continue to promote.

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VA must own its data; clear ownership and access are critical to success now and in the future

The Panel highlighted an important recommendation regarding data rights that was discussed in the prior VA EHRM Listening Forum on September 7, 2017. The Panel recommended that VA define who has what rights from the perspectives of data ownership, access, and sharing (e.g., VA owns the data and all data products vs. community care providers own the patient data vs. each Veteran owns all of his or her data). Determining the authoritative data source for the various elements of a Veteran's health record is an important Veteran-centric component of interoperability, the longitudinal record, and seamless access to data.

“So, what you need is clear access and clear ownership of your information...you need to have absolutely, undisputed, clear ownership and ability to move the data to any place you want to use it and use it in any way you want to use it when you get there. And not have them [Cerner] be able to say no, that's our data or hinder you in any way or have an unreasonable charge to get it.”

VA should define an enterprise-wide policy for all VA data. A suitable policy would include, but not be limited to, EHRM-specific data, and should be issued by the VA Central Office (VACO) or Veterans Health Administration (VHA). VA must have clear ownership of and access to all the information in the EHR and be able to move that information (into new systems or among systems) as needed, now and in the future. Owning the data ensures that it is available regardless of vendor or system. VA must include this in the Cerner contract. Technology innovations occur rapidly in the 21st century, and VA must have full ability to move its data to future systems.

Panelists also recommended that VA publish its data model, for instance to the National Library of Medicine, to further promote commercial interoperability investments. Lastly, Panelists encouraged VA to leverage its investment in the Open Source Electronic Health Record Alliance (OSEHRA) by providing seed money to develop open source connectors between Cerner and Epic, which would encourage other vendors to join in the effort.

Topic Area: Commit to Open, Standards-Based APIs

A significant technology enabler of seamless interoperability among the community of Veteran healthcare providers is the use of Application Programming Interfaces (APIs). These software intermediaries allow disparate EHR applications to communicate with each other and exchange data using standard, defined forms. The Panel emphasized the need for VA to create an environment that would minimize additional costs to community providers in order to interoperate with VA. VA can accomplish this by requiring the new EHR system to expose APIs that support bi-directional data transactions. The Panel further recommended that VA make a commitment to open, standards-based APIs, including the SMART on FHIR/Argonaut APIs, to facilitate the ready and efficient exchange of data with partners providing care in the community and to support open clinical workflow.

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Establish clear publishing and access service requirements

The Panel recognized that data access requirements differ depending on who provides or accesses that data. Therefore, the Panel recommended that VA be more specific in defining each level of data publishing and access service that is specific to (1) Veteran access (e.g., use of vets.gov); (2) VA clinician access; (3) partner access; and (4) Health Information Exchange (HIE) access. The RFP should include a clear description of identity and access management requirements, including user population types and the association of specific application permissions with particular roles/positions.

Machine-to-machine access is also critical for efficient sharing of information. The Panel recommended that VA ensure that all significant data stored in the software be accessible through APIs with no requirement for creation of custom applications to specifically access VA data. From a forward-looking perspective, VA should require that the EHR system support the ability to access data elements using open standards-based interfaces, and include the ability to interface with legacy data, patient-generated data, and third-party data that resides outside the EHR system. In addition, Cerner should provide the required utility services to support intermediary or peer-to-peer services (e.g., support Veteran-directed or Veteran-mediated requests, data exchange, and ingestion of data from non-VA providers).

“The Contractor should provide all of the data that is currently being provided in the Contractor's patient portal to the consumer via an open standards-based API gateway. The Contractor should also provide all of the reporting data required by federal law to the Veteran via an open standards based API framework, accessible via any application or third-party data store of the Veteran's choice, that's number one.”

Provide a VA application platform that supports APIs from third-party providers with no barrier to entry

Currently vets.gov serves as a portal to Veteran services. The Panel recommended that VA consider using such a portal to connect any third-party application to the EHR solution without requiring fees or vendor permissions. VA should have full

authority to connect any third-party application through one of the standard open APIs conformant with the vendor's API without pre-registering the application with the vendor. This is a very important authority to have in terms of the ability to innovate rapidly, without constraints.

“The API Gateway document is awesome ... world class and future looking.”

The Panelists also reviewed the proposed VA “API Gateway” language provided during the API discussion to anchor the dialogue and concurred that this requirement is fundamental to supporting interoperability. The Panel strongly endorsed the “API Gateway” language. Specifically, the Panelists recommended that VA include a requirement that VA have full authority to connect any third-party application to the Cerner system without requiring prior approval by Cerner. Furthermore, VA should ensure that developers of third-party applications connecting to the VA system via the open standard and VA-defined APIs continue to own their

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intellectual property (IP). From a usability perspective, the Panel also recommended that VA be able to establish the connectivity business rules, such as the ability for applications to remain connected for a reasonable time frame (e.g., 1 year) and to receive automatic notification about patient information updates.

Require implementation of Clinical Decision Service (CDS) Hooks to invoke decision support from within a clinician's EHR workflow

EHRs are essential to efficient delivery of high-quality care, as they provide the clinician with essential decision data at the time required. However, current EHR systems approach workflow from an IT system perspective rather than a clinician's perspective. The latter workflow should, of course, be paramount in the VA EHR implementation, and should also leverage a recent innovation called CDS Hooks. This technology provides the clinician with context-driven decision support and capability by enabling the EHR to trigger third-party services at key events that include ordering medication and opening a patient face sheet. For example, when the VA clinician begins to prescribe medication, a CDS Hook can call an external service that presents the clinician with the list of medications already prescribed to the patient by clinicians outside VA. The Panelists strongly recommended that VA require Cerner to implement and use CDS Hooks within the clinician workflow.

Topic Area: Use Community Care Contracts to Foster Interoperability

The new EHR system must be able to communicate with other EHR systems (e.g., Epic, AllScripts, etc.) within the care community. It is critical that VA ensure the Cerner EHR system remain robust for future interoperability with new products. Cerner must commit itself to supporting other forms of interoperability, such as a presentation layer that is common to other systems (e.g., the App store model). The Panel recommended that prior to execution of the Community Care Act contract VA require third-party providers (and Cerner competitors) to commit to supporting the contract as early adopters.

"Innovations going forward are going to come from multiple directions. And having those interfaces, and going with a general interoperability approach that doesn't fork off from what's happening in the rest of the healthcare system, will allow the Veterans to benefit from technology whether that's coming from Google, from a new company, from an innovative shop within VA -- you end up creating a market with good prices, high value."

Veterans must be able to access and download a computable form of their health data

Panelists noted that access to data represents the biggest problem today. VA must clearly direct Cerner to expose data so it can be used by third parties. In the contract and in conversations with Cerner and third parties, VA must require specifics regarding how Veterans and providers will

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access and share their data. In addition, VA must require that any agreements leave the door open for future standards and technologies.

Panelists believed that VA could achieve this by invoking the principle that the data belongs to the Veteran, rather than by citing specific technologies and standards (given how rapidly they are evolving). Veterans must be able to invoke their right of access to data to support data exchange across all providers (e.g., pull data through an API on their smartphone and push it to their community care provider), now and in the future. Keeping pace with this requirement will drive continual innovation by Cerner and all providers.

VA must own the API layer

Cerner ownership of the API layer (across every customer) poses a real threat to achieving interoperability, speed of innovation, and cost efficiency throughout the network of community care providers. Panelists stated that it is of utmost importance that VA include specific language stipulating that VA and Veterans be able to use third-party applications without having to register them with Cerner. VA must control the API key, not Cerner.

Additionally, VA should require that Cerner provide access to MPages, a developer toolkit, and a programming interface that will enable innovators and third parties to develop APIs.

Require that community care contracts include VA EHR standards to support bi-directional data sharing

Panelists agreed that requiring the support and collaboration of community care providers and participating actively in health IT standards bodies would give VA the opportunity to advance the “national” standard for data sharing—closing any gaps and inconsistencies among federal, industry, and inter-industry standards. VA must require every provider in the chain of a Veteran’s care to support the same standards for data interoperability in order to ensure seamless, best possible care for Veterans. This includes the requirement that all providers and third-party applications, in exchange for using the VA-provided API gateway, provide bi-directional health information back to VA that can be used for context-driven clinical decisions and informatics.

Change the data exchange consent model from “opt in” to “opt out”

To encourage seamless interoperability across all entities providing care to Veterans, the consent model for exchanging data between healthcare providers must be modified to follow an opt-out rather than an opt-in policy, which limits participant numbers. This would allow Veterans to invoke their individual right of access under the Health Information Portability and Accountability Act (HIPAA) to move their data as needed. Many states have already adopted an opt-out consent policy as part of their HIE.² VA can achieve this by aligning its policy to an opt-

² See https://www.healthit.gov/sites/default/files/State%20HIE%20Opt-In%20vs%20Opt-Out%20Policy%20Research_09-30-16_Final.pdf

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out model, supported by the new VA proposed rule³ to allow HIEs to collect a Veteran's consent and electronically attest to the consent to VA in order to obtain the required EHR.

Topic Area: Additional Contract Changes

In addition to the recommendations in the prior sections, the Panelists encouraged VA to add further definitions and clarity in the following areas:

- Require Cerner to provide VA with full read and partial write access to all data elements within the EHR, at VA's sole discretion.
- Require Cerner to make the VA data model, standards, and other similar interoperability changes available in all other non-VA Cerner instances of its EHR platform.
- Clearly define "enabling security framework" so that users know if this means a specific security framework such as those provided by the National Institute of Standards and Technology (NIST), HITRUST, etc.
- Amend "national Common Trust Framework" to specifically refer to the intended source. The Panelists suggested that VA replace this wording with "Trusted Exchange Framework and Common Agreement (TEFCA)" as specified in the 21st Century Cures Act.
- Amend RFP Performance Work Statement (PWS) Section 5.10.4(i) to clarify if the "provider collaboration via secure e-mail using Direct standards" is limited to the Direct protocols and just the Cerner platform.
- Incorporate the model RFP language necessary for Cerner to support the API and SMART on FHIR platform and SMART-enabled applications, as described in Appendix B.

³ See <https://s3.amazonaws.com/public-inspection.federalregister.gov/2018-00758.pdf>

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II. Recommendations for RFP Changes

MITRE engaged Morrison & Foerster, LLP, as the independent and unbiased legal expert to identify the specific changes to the RFP language necessary to implement the recommendations made by the Interoperability Review Panel. MITRE provided Morrison & Foerster, LLP, with the summary recommendations and a copy of the RFP.⁴ In addition, MITRE collected specific ideas for contract language from the Panel. Appendix C presents all recommended RFP changes.

⁴ *Performance Work Statement for the VA Electronic Health Record Modernization System*, Final Version 1.7, Amendment 03, December 4, 2017, Department of Veterans Affairs. File name: 001 - VA EHRM IDIQ PWS (Amended 12.04.2017) - Copy.docx

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III. Observations from University of Pennsylvania Medical Center Site Visit

A delegation from VA and MITRE traveled to Pittsburgh, Pennsylvania, on January 19, 2018, for a meeting with representatives of UPMC Enterprises to discuss aspects of EHR interoperability that UPMC has successfully implemented over the past several years. The VA team, led by John Windom, included Dr. Ashwini Zenooz, (b)(6), John Short, and (b)(6).

(b)(6) The MITRE group included Richard Byrne, Jay Schnitzer, (b)(6), (b)(6), and (b)(6). The hosts at UPMC included Dr. Rasu Shrestha, C. Talbot Heppenstall, Jr., Ed McAllister, Dr. Robert Bart, Adam Berger, Diane Michalec, Phyllis Szymanski, and Dr. Amy Urban, as well as additional staff.

The meeting was broken into four parts. Following introductions, Session 1 described the structure of UPMC. Session 2 covered UPMC's last decade of interoperability, and Session 3 centered on the road ahead for UPMC and industry.

Dr. Rasu Shrestha began the meeting by making the introductions and setting the agenda. He stated that UPMC's approach had followed a best-of-breed strategy, as opposed to a best-of-suite strategy, with the intention of failing fast and succeeding often. The overall UPMC structure has four parts: provider services, insurance services, international activities, and enterprises.

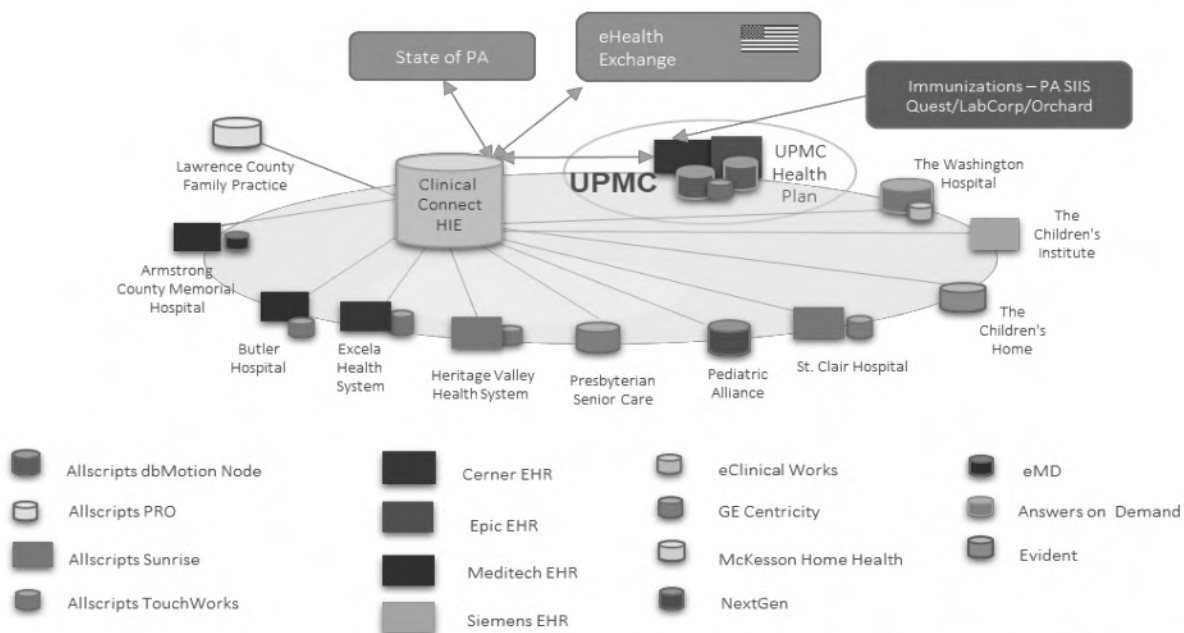
During the discussion of interoperability, the UPMC team described its approach to interoperability, called Connected Healthcare, which is based on the commercial product dbMotion of AllScripts. UPMC has created an entity titled ClinicalConnect HIE (CCHIE) that uses HL7. ClinicalConnect exists as a separate 501c(3) company, of which UPMC is a member. CCHIE contains 90 live interfaces. This HIE went live in June 2012; its members consist of 10 hospitals. It competes with three other HIEs in Pennsylvania. The repository contains data on 8.3 million patients, and, in terms of patient consent, CCHIE uses an opt-out model. It currently has connections to four EHRs: Cerner (two versions), Epic, and Varian. Data available within CCHIE spans allergies, clinical documents, diagnosis, encounters, immunizations, labs, medications, problems, and procedures. Much of this data is in the form of documents (Continuity of Care Document (HITSP C32 CCD format, including problems, allergies, and medications); unstructured clinical documents (HITSP C62 format); Consolidated Clinical Document Architecture (C-CDA CCD, including problems, allergies, medications, immunizations, procedures, and insurance); and HL7 Interface (ADT: encounters, documents, imaging documents, and labs only).

At the point of care dbMotion allows multiple views for the CCHIE: 1) a clinical view, 2) a newer view titled EHR agent, and 3) a Cerner MPage integration view. The next phase of the UPMC work in this regard will consist of integration with CommonWell. Figure 2 shows the architecture of the system. Figure 3 depicts the data feeds.

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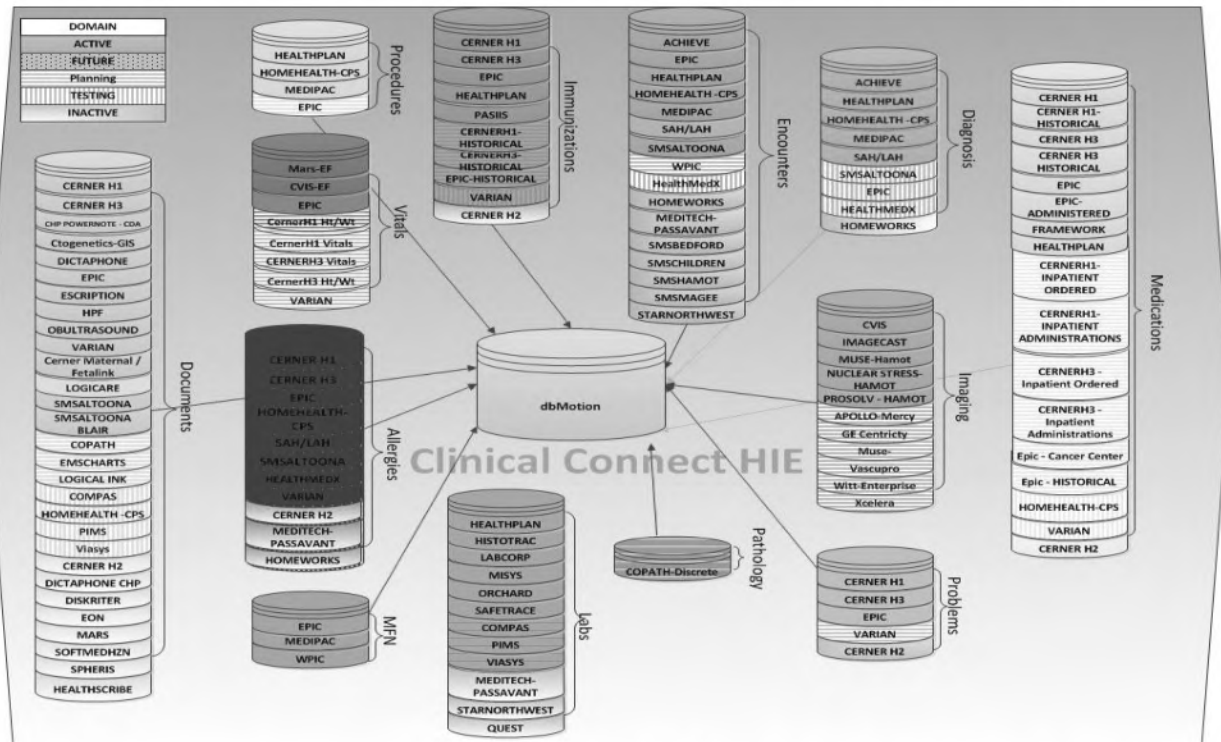
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Source: From UPMC Enterprises, used with permission, for VA use only

Figure 2. ClinicalConnect (Western Pennsylvania) Health Information Exchange



Source: From UPMC Enterprises, used with permission, for VA use only

Figure 3. Interoperability Data Integration

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When asked whether UPMC, or anyone else in the country, has a point-to-point Cerner-to-Epic interoperability solution that does not use an HIE, UPMC representatives responded “No.” Furthermore, UPMC representatives noted that about 10 percent of the total available individual patient data is currently transferred with UPMC’s interoperability system. This is complicated by an ongoing data explosion that doubles the amount of data in UPMC’s system about every 18 months.

Following the presentations and lunch, MITRE Chief Technology Officer Jay Schnitzer saw a live demonstration of CCHIE by Dr. Amy Urban and Dr. Rasu Shrestha. The live demonstration confirmed that all of the documents listed above are visible with equal fidelity and a very similar format from both the UPMC end and the community provider end and perspective. The system requires clinicians to know and understand where documents can be found, and sometimes requires multiple mouse clicks, but all documents can be accessed from the same EHR entry page with one single log in. Additionally, some data elements, including vital signs and labs, can be viewed in the form of graphs as a function of time, including data elements from multiple sources.

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IV. Closing Thoughts and Suggested Next Steps

The Panelists noted that VA cannot achieve true future EHR interoperability through the Cerner RFP alone, or through technology alone. The state of practice today shares only a small portion of available patient data. For VA to succeed in the future, multiple other components must be present and aligned: innovation, policy, standards, customer buy-in, and legislation, to name a few.

The following next steps are recommended for VA consideration:

1. Complete the RFP revisions, conduct appropriate negotiations with the Contractor expeditiously, and complete the Contract process as planned. Stand firm during negotiations to maximize ease of access to data and data models for building third-party APIs, applications, and services for future community innovations.
2. Work with other federal government agencies and departments with similar interoperability interests and concerns, including, but not limited to, the White House, DoD, Food and Drug Administration (FDA), Centers for Medicare and Medicaid Services (CMS), Office of the National Coordinator for Health Information Technology (ONC), and other parts of the Department of Health and Human Services, to align approaches to EHR interoperability and the development and support of standards government-wide.
3. Support future innovation approaches, including concepts such as an Interoperability Laboratory and outreach to the broader innovation ecosystem (major medical centers, academia, traditional and non-traditional healthcare providers, startups, individual entrepreneurs, others). It is critical to align the innovations planned in VA's Digital Veterans Platform to the VA EHR innovation efforts to ensure consistent, continuous improvements to clinician and Veteran health experiences.
4. Create an External Review Panel to provide continuous expert guidance, review, and feedback over the course of the implementation and help capture best practices from the expert community going forward. Conduct ongoing demonstrations of end-to-end Veteran use cases that require data sharing across organizational boundaries to validate improvements in Veteran healthcare and reduce burdens on healthcare providers. VA and Contractor will ensure that Federal Advisory Committee Act (FACA) guidelines are followed in leveraging any external review panels.

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Appendix A: Interoperability Review Forum Participants

Panelists	Title	Organization
Aneesh Chopra	President	CareJourney, former United States Chief Technology Officer
Charles E. (Chuck) Christian	Vice President, Technology and Engagement	Indiana Health Information Exchange
Ryan Howells	Principal	Leavitt Partners, LLC
Andrew Karson, MD	Director, Clinical Decision Support	Massachusetts General Hospital
Chris Klomp	Chief Executive Officer	Collective Medical Technologies, Inc.
Kenneth Mandl, MD	Professor, Biomedical Informatics Director, Computational Health Informatics	Harvard Medical School Boston Children's Hospital
Frank Opelka, MD	Medical Director, Quality and Health Policy	American College of Surgeons
Peter Pronovost, MD, PhD	Director, Armstrong Institute for Patient Safety and Quality Senior Vice President, Patient Safety and Quality	Johns Hopkins University
Christopher J. (Cris) Ross	Chief Information Officer	The Mayo Clinic
Carla Smith	Executive Vice President	The Healthcare Information and Management Systems Society
Paul R. Sutton, MD, PhD	Professor, Biomedical Informatics and Medical Education Associate Medical Director, Inpatient IT Systems, UW Medicine IT Services	University of Washington

VA Participants	Title	Organization
David J. Shulkin, M.D.	Secretary	Department of Veterans Affairs
Carolyn Clancy	Executive in Charge, Veterans Health Administration	Department of Veterans Affairs
Bill James	Acting Assistant Secretary, Office of Information & Technology	Department of Veterans Affairs
John Windom	Program Executive for EHRM and Special Advisor to the Under Secretary for Health	Department of Veterans Affairs
Dr. Ashwini Zenooz	Chief Medical Officer, EHRM; Deputy, Office of Deputy Under Secretary for Health Policy & Services, VHA	Department of Veterans Affairs
John Short	Chief Technology Officer, EHRM; Executive Director of Information Technology System Modernization	Department of Veterans Affairs
(b)(6)	Portfolio Lead: Project Transition and VA Integration, VA Center for Innovation	Department of Veterans Affairs
Camilo Sandoval	Senior White House Advisor, VHA	Department of Veterans Affairs
(b)(6)	Senior Advisor to the Secretary on Strategic Partnerships	Department of Veterans Affairs
(b)(6)	Contracts	Department of Veterans Affairs
Kyle Sheetz	White House Fellow	Department of Veterans Affairs

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Other Federal Government Participants	Title	Organization
(b)(6)	Senior Advisor, Office of Administration	The Centers for Medicare & Medicaid Services
Chris Liddell	Assistant to the President for Strategic Initiatives	The White House, Office of American Innovation
Bruce Moskowitz, M.D.	Internist	External Expert Participant
Shannon Sartan	Director, Digital Services	The Centers for Medicare & Medicaid Services
Dr. Lauren Thompson	Director	DoD/VA Interagency Program Office
Jon White	Deputy National Coordinator for Mental Health	The United States Department of Health and Human Services/The Office of the National Coordinator for Health Information Technology

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Appendix B: RFP Language for Purchasing Extensible Health IT

From <https://smarthealthit.org/2017/08/draft-model-rfp-language-for-purchasing-extensible-health-it/>, as of January 15, 2018.

SMART Platform (www.smarthealthit.org) is a project that lays the groundwork for a more flexible approach to sourcing health information technology tools. Like Apple and Android's app stores, SMART provides the means for developers to create and for health systems and providers to easily deploy third-party applications in tandem with their existing electronic health record, data warehouse, or health information exchange platforms.

To deploy SMART-enabled applications, health systems must ensure that their existing health information technology infrastructure supports the SMART on FHIR API. The SMART on FHIR starter set detailed below lists the minimum requirements for supporting the API and SMART-enabled applications. You may wish to augment this list of minimum requirements with suggestions from the Add-On Functionality listed depending on the types of applications your organization wishes to deploy.

This document is intended as a resource for providers and health systems as they draft Request for Proposals (RFPs) and negotiate with their HIT vendors for added functionality. It has multiple authors from across the SMART team and its advisors. Feedback is welcome.

The vendor must support the SMART on FHIR platform, a vendor agnostic API that allows third-party developers to build external apps and services that integrate with the vended product.

At a minimum, the vendor product should include the following components in order to support SMART on FHIR and SMART-enabled applications:

Data Access

- Provide automated, standards-based, read-only access through the FHIR API and FHIR data models (resources) to:
 - a well-defined set of real-time discrete data (including support for the API parameters and resources described in the Argonaut Implementation Guide)
 - free-text clinical notes

Data Manipulation

- Write structured data from third-party apps back to the organization's EHR and, where relevant, a data warehouse, using the FHIR REST API to communicate data including:
 - free-text clinical notes

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Standards-Based App Authorization

- Protect data and identity endpoints with standards-based authorization mechanisms (including the OAuth2 profiles described in the Argonaut Implementation Guide).
- Provide access to data endpoints with an approach that does not require user intervention subsequent to the initial setup such as the method described in the draft SMART Backend Services Profile (<http://docs.smarthealthit.org/authorization/backend-services/>) Provide capability to restrict this access to a specified set of patients (roster).
- Enable Health System to connect any third-party app of their choice that is conformant with the API without pre-registering the app with HIT Vendor.
- Enable patients to connect any third-party app of their choice that is conformant with the API without pre-registering the app with HIT Vendor through the OAuth Dynamic Registration protocol.
- Provide OAuth refresh tokens with a duration of one year to patient and provider facing apps that support the SMART Client Secret profile.

Identity Management

- Act as a standards-based Identity Provider using OpenID Connect. This ensures that users can authenticate to plug-in apps using single-sign-in via their existing EHR or patient portal credentials.
- Act as a standards-based relying party to a customer-selected Identity Provider using OpenID Connect. This ensures that users can sign into the EHR or patient portal using an external, hospital-supplied single-sign-on account.

Workflow

- Support standards-based embedding of external application UI (HTML5). This ensures that app developers can build Web apps, and these apps can run directly inside of the EHR.
- Support the launch of external applications in the clinician's workflow (this is not limited to the EHR and should include non-EHR integrated tools such as smart phones and tablets). For example, a clinician that has opted to use a third-party-developed native iPad app to visualize a patient's BMI over time can seamlessly use the application alongside the EHR via single-sign-on.
- Support notifications to and from running applications. For example, an embedded app can notify the EHR when the user is "done" with it.

Add-On Functionality

The provider organization may also want to consider the following additions to its RFP depending on the types of applications it wishes to develop and run in the future.

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Bulk Data Export

- Provide automated access to bulk export of data (complete representation of all data in the MU Common Clinical data set as well as free text notes) using a method like the SMART Flat FHIR draft proposal (<http://docs.smarthealthit.org/flat-fhir>)

Data Manipulation

- Write structured data from third-party apps back to the organization's EHR and, where relevant, a data warehouse, using the FHIR REST API to communicate data including:
 - medication prescriptions
 - lab and diagnostic imaging orders
- Support the dependent transactions necessary to ensure that actions completed by third-party applications using the API are valid in the EHR and data warehouse.

Context-Specific Service Hooks

- Support the ability to call an external standards-based service in specific workflow steps, through the CDS Hooks specification, including:
 - opening a patient record
 - new prescriptions
 - new lab orders
 - new imaging studies

Intellectual Property

The IP of any app integrated through the SMART on FHIR API belongs to the author and not the vendor.

Custom SMART on FHIR Extension to a Proprietary API

Should a vendor neglect to provide SMART on FHIR natively, the client has the right to provide a custom extension to the vendor's API. The ownership of the IP for the custom extension is negotiable between the client and the vendor, but the ownership of the app using the custom extension belongs to its author.

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Appendix C: Recommended RFP Interoperability Language Changes

The table below captures the recommended changes to the VA EHRM RFP.

Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
Commit to Full VA-DoD Interoperability				
1	Define specific capability performance requirement and mechanisms to hold Cerner accountable for reducing the administrative burden in clinician workflow with the objective of increasing efficiency.	<p>The IDIQ RFP PWS Section 5.1.11 speaks to overall EHRM value and performance management monitoring, measurement and reporting. Performance metrics will be defined and enforced at the task order level, since, for example, hosting metrics will be significantly different from deployment metrics.</p> <p>The RFP Section 8.6 refers to the use of Quality Assurance Surveillance Plans (QASP), which will include Functional and Non-Functional Key Performance Indicators (KPIs). The QASP will evolve as the EHRM solution and technology matures and is intended to establish Contractor accountability to what VA requires and values.</p>	None.	Concur.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
2	Define specifically the <i>span</i> of providers who can properly interface with VA under a proposed solution (the number of community providers who would be able to interface with VA under a solution as a function of cost to the provider).	RFP Section 5.2.1(j) states that “The EHRM solution shall support access via tablet or mobile device as adjudicated by joint governance. Platform specifics will be identified by VA at a TO level.” Section 5.10.4 states that “The Contractor is required to collaborate with VA affiliates, community partners, EHR providers, healthcare providers, and vendors to advance seamless care throughout the healthcare market.”	Suggest amending the language in RFP Section 5.2.1(j) to: “Support broad access via tablet or mobile devices and pursue technology to reduce the burden to the clinicians (e.g., providing third-party provide access to information using light-weight portals and support for future generation mobile devices). Platform specifics shall be adjudicated by joint governance and incorporated by VA at a TO level.”	Concur. Will negotiate with Cerner for inclusion of language.
3	Define the <i>degree</i> of interoperability the solution provides (ranging from basic file sharing to fully interchangeable, integrated and functionally identical patient records).	RFP Section 5.10.4 speaks to interoperability and provides sufficient breadth to introduce any additional information exchange requirements in the future, at the sole discretion of VA. Requirements Traceability Matrix (RTM) VA-FR-31 discusses specifics of data management, types of data to be exchanged, and methods of communication.	Suggest adding to RFP Section 5.10.5: "m) The Contractor shall conduct an annual Interoperability Self-Assessment against standards that shall be specified by VA, such as those promulgated by HIMSS or future standards to be identified by VA.”	Concur. Will negotiate with Cerner for inclusion.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
4	Pivot the RFP to be Veteran-centric and NOT system-centric. Be mindful that lessons learned are that many EHRs do not currently maximize efficient clinical workflow, so build that in (e.g., using CDS Hooks) and present information where needed with minimum "clicks to find" to reduce clinician burden.	<p>RFP Section 5.2.1 speaks to the EHR application supporting workflows.</p> <p>Section 5.5.1 Workflow development and normalization addresses configuration of workflows to meet VA requirements.</p> <p>Section 5.5.7 Organizational Change Management discusses optimizing workflows for each clinical role.</p> <p>Section 8.6 refers to the use of Quality Assurance Surveillance Plans (QASP) which provides active, continuous measurement against the extensive performance requirements captured in Appendices A-1 and A-2: EHRM Key Performance Indicators to ensure a Veteran-centric approach.</p> <p>RTM section VA-FR-33 requires adoption, development and maintenance of metrics to assess timeliness and quality of healthcare delivery to the patient population.</p> <p>The current RFP language can be clarified to specifically refer to the improvement on Veteran-centric delivery.</p>	<p>Suggest adding to RFP Section 5.5.1: "k) Provide an understanding of how all workflows will impact VA care coordination and management processes (e.g., incorporating community information) to improve Veteran-centric delivery."</p> <p>Also add to Section 5.5.1: "l) Configure workflows to incorporate all community data at the discrete level in support of clinical decision support, care management, disease management. The clinical workflow within the EHR should not require users to visit additional screens to view externally sourced data."</p> <p>See Item 29 for specific recommendations on CDS Hooks.</p>	Concur. Will negotiate with Cerner for inclusion.
5	Require Cerner support end-to-end use cases with major external stakeholders involved.	RFP Section 5.2.1 speaks to the EHR application supporting workflows. The Contractor can only be held responsible for elements of the end-to-end use case that reside within their system.	Suggest adding to RFP Section 5.2.1: "Testing conducted under the Test and Evaluation Program Plan may include specific workflows to inform a demonstration of end-to-end clinical use cases involving external stakeholders."	Concur. Will negotiate with Cerner for inclusion.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
6	Develop detailed data flow requirements between Cerner and all other vendors, be specific using clinical workflow or Veteran/patient-centric use cases.	Detailed data flow requirements should not be part of the RFP as it will result in the limitation of functionality to the specific data flows specified. They will be part of the Test and Evaluation Plan (TEP), where data flows can be added or modified. However, RFP Section 5.5.1 does not indicate that the external community data and end-to-end workflows will be considered in the configuration of standard EHRM workflows.	Suggest adding to RFP Section 5.5.1: “j) The Contractor shall enable configuration of the application that supports external community data without requiring the clinician to go to special screens to see and use external data.”	Concur. Will negotiate with Cerner for inclusion.
7	Specifically define the machine-data readability expectations to ensure interoperability between legacy, community care providers, and Cerner (e.g., notes fields).	RTM VA-FR-31 Requires the ability "to manage data structures that are standardized, accessible and editable." Specific requirements are to be incorporated into Task Orders, according to the structure of the contract.	See Item #34 for recommended changes to incorporate the SMART on FHIR and SMART-enabled applications. See Item # 49 for recommended changes to incorporate sharing of the EHRM data model and to improve the amount of computable data shared with community care providers. Suggest VA obtain a description from the Contractor that describes the current baseline of shareable data elements that are computable.	Concur. Will request information from Cerner.
8	Document the DoD-VA EHR Exchange Framework - it can serve as a starting point for the National model.	This is information that should be included as part of acquisition baseline developed by EHRM Program Management Office technical activities.	None.	Concur.
9	Require ability for bulk data export.	RFP Section 5.10.4(g) requires the Contractor to provide a software solution for multilateral standards-based ingestion, normalization, storage and exporting of Health Information Exchange acquired Veteran health information.	None.	Concur.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
10	Require "push" capability to send data back in to VA EHR / Cerner database.	RFP Section 5.10.4(g) requires the Contractor to provide a software solution for multilateral standards-based ingestion, normalization, storage and exporting of Health Information Exchange acquired Veteran health information.	None.	Concur.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
11	Require that VA drive and own the analytical algorithms and not rely on Cerner. Require that VA health organizations be involved in building the logic models with the community and the vendor.	<p>RFP Section 5.1.5 requires the Contractor provide requirements development support but does not include who is responsible for coordinating the community input on the logic models.</p> <p>RFP Section 5.1.7 requires the Contractor support data management but does not state that VA shall provide the analytical algorithms.</p> <p>RFP Section 5.5.1(e) requires the Contractor support robust semantic modeling for the information associated with the workflows. Further detail to achieve this recommendation is also detailed in the Functional Requirement documentation, specifically VA-FR-31. VA should lead and own the analytical algorithms as it is in the best interest of the health community. By owning the algorithms, VA will take the lead on coordinating the effort, but the Contractor will actually develop the algorithms.</p>	<p>Suggest adding to RFP Section 5.1.5: "While the Contractor shall provide such support, VA reserves the right to take the lead on coordinating input from the user and provider communities. VA may, at its discretion, incorporate analytics from other entities, and include them in its future Digital Veterans Platform, with which the EHR must be fully compatible and interoperable."</p> <p>Suggest adding to RFP Section 5.1.7(b): "based on community and VA coordinated analytic algorithms."</p> <p>Suggest adding to RFP Section 5.5.1(e): "VA and its agents shall have unlimited rights to all resulting models and algorithms."</p> <p>Suggest adding to RFP Section 5.5.1(f): "which modeling shall be based on analytical algorithms and data models (1) developed by the Contractor, (2) co-developed by the Contractor in coordination with VA health organizations and the community, (3) developed by VA health organizations, or (4) provided by third-party developers. VA and its agents shall have unlimited rights to all algorithms and logic models incorporated in the EHRM solution, and intellectual property rights will be handled in accordance with § H.2 of the Contract "VA EHRM IP License Agreement" on a Task Order basis."</p>	Concur. Will negotiate with Cerner for inclusion.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
12	Enhance the data quality management requirements to ensure Cerner is responsible for maintaining and resolving data quality issues.	RFP Section 5.1.8 Requires the Contractor to be responsible for data migration, but RFP Section 5.1.7 does not include a requirement for the Contractor to manage data quality internal to its systems.	Suggest adding to RFP Section 5.1.7: "j) Maintain backward compatibility of the EHRM solution in such way as to maintain the quality of the data, to ensure that, once captured, the Government has access to and computational use of the data regardless of the evolution of the EHRM or age of the data k) Identify data quality issues found in data sourced from systems beyond its operational remit, applying the same validations and quality standards to incoming external data that it performs for data originated natively within the EHRM solution. Where the principle of seamless care requires that EHRM accept data that does not meet its internal data quality standards, Contractor shall implement the solution so that any incoming data that does not meet EHRM data quality standards be clearly flagged as such and provide both process and user interface to allow incorrect or missing data to be remedied if possible."	Concur.
13	Define the common identity and access management approach Cerner and others will adopt (e.g., using the Vets.gov identity as the coordinating identity).	RFP Section 5.5.2 describes the required approach to identity and access management across population types and roles. DoD/VA are aligning their efforts to address this going forward.	None.	Concur.
14	Adopt the DoD approach to data and system security.	RFP Section 5.4: Information System Authorization, Testing and Continuous Monitoring describes the security approach for the shared DoD/VA authorization boundary. Joint DoD/VA Strategy will be executed.	None.	Concur.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
15	Share the VA's security approach to medical and endpoint security with DoD for opportunity to leverage and harmonize.	RFP Section 5.4: Information System Authorization, Testing and Continuous Monitoring describes the security approach for the shared DoD/VA authorization boundary. Joint DoD/VA Strategy will be executed.	None.	Concur.
16	Require Cerner to make the VA data model, standards, and other similar interoperability changes available in all other non-VA Cerner instances of its EHR platform.	RFP Section 5.10.4.1 requires opportunity for agreed upon Contractor proprietary information/data model extension points (e.g., ingestion and record APIs) to be provided to both international and national standards designating organizations, however, this does not include providing the capability to other Cerner users, which would extend Cerner interoperability across the community.	Suggest adding to RFP Section 5.10.4.1: "The Contractor shall provide VA access and usage rights into any underlying proprietary terminology/code systems for the purpose of enhancing national standards to address any gaps identified in the EHRM solution. The Contractor shall also make the interoperability capabilities and product enhancements developed under this contract available to non-VA Cerner clients."	Concur. Will negotiate with Cerner for inclusion of language.
17	Clearly define "enabling security framework." Does this mean a specific security framework such as NIST, HITRUST, etc.	VA Requirements Traceability Matrix Non-Functional requirements provides the security requirements to include Access Management, Identity Management, and Information Assurance/Security. RFP Sections 5.4 Information System Authorization, Testing and Continuous Monitoring and 5.5.2 Identity and Access Management provide additional clarification on the security requirements.	None.	Concur.

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Leverage Current and Future Standards				
18	Specifically describe what and how you can read, write, and reconcile re: health data.	Requirement VA-FR-31 describes data management requirements: standardized data and coding terminology systems; use of government endorsed messaging and content standards for interoperability; management of data elements from various entry points etc. The current requirement does not provide understanding of which data elements are being exchanged and the degree of interoperability/ computability supported.	Suggest adding to RFP 5.10.4(m): “The annual assessment will report on the state of each data element (e.g., which are supported in what capacities and in which formats). This will help assure standards implementation consistency and assure standards compliance with evolving national standards.”	Concur. Will negotiate with Cerner for inclusion of language.
19	Define who has what rights from a data sharing perspective, impacting APIs (e.g., VA owns the data + all data products vs. Community care provider owns their treatment info on patient vs. patient owns all their own data.)	Requirement VA-FR-31 and RFP Section 5.1.7 describe data management requirements (including syndication). Section 5.5.4 requires “all, significant data stored in the software is accessible through API’s” however clarification is needed to ensure access to all data originating from alternate VA-designated authoritative sources.	Suggest adding to RFP 5.5.4: “l) Provide standards-based API access (e.g., FHIR) to all patient data from the VA-designated authoritative data sources for the patient’s record within the Contractor’s product suite.”	Concur. Will negotiate with Cerner for inclusion of language.
20	Identify the authoritative source for the various elements of a Veteran's health record.	RFP Section 5.1.4 requires the Contractor to provide support in the development and/or evaluation of new Standards, Policy Directives, Operating Procedures, Processes, etc. Broader recommendation beyond the scope of the EHRM RFP is for VA to define the authoritative source policy for all VA data. This is not an EHRM specific policy and should be issued by VACO or VHA.	Suggest adding to RFP 5.5.4: “j) assist VA in defining and establishing the authoritative data sources associated with each data element in the EHR (e.g., where it is available and who has access to the information).”	Concur with the language for 5.5.4.

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21	Increase the VA presence and leadership role in standards-making bodies (e.g., Argonaut).	Increasing VA presence and leadership roles in standards-making bodies is an entirely separate recommendation that is not related to the IDIQ.	None.	Concur.
22	Include requirement for Cerner to support VA as an advocate to VA position on all relevant standards-making bodies.	RFP Section 5.1.4 requires Contractor support in the development and/or evaluation of new standards, policy directives, operating procedures, processes and/or assessments on their impacts when implemented.	None.	Concur.
23	Require Cerner to implement all standards as defined by VA.	Requirements Traceability Matrix VA-NJ-177 defines interoperability data standards and specifically cites support of the health data standards identified in the VA-DoD Health Information Technical Standards Profile and by the VA-DoD Interagency Clinical Informatics board.	None.	Concur.
24	Clarify the intended reference in the phrase “national Common Trust Framework.” Does this refer to the Trusted Exchange Framework and Common Agreement (TEFCA) specified in the 21st Century Cures Act?	RFP Section 5.10.4(h) refers imprecisely to the "national Common Trust Framework."	Suggest replacing the phrase in RFP Section 5.10.4 h) "national Common Trust Framework" with “Trusted Exchange Framework and Common Agreement (TEFCA).”	Concur. Will negotiate with Cerner for inclusion of language.
25	Clarify if the “provider collaboration via secure e-mail using Direct standards” is limited to the Direct protocols and just the Cerner platform.	RFP Section 5.10.4(i) requires the Contractor, by IOC, to "provide a capability for provider collaboration via secure e-mail using Direct standards within a Cerner Millennium EHR workflow context."	Suggest adding to RFP Section 5.10.4(i): "the ONC Direct protocol or future VA-designated standard."	Concur. Will negotiate with Cerner for inclusion of language.

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Commit to Open, Standards-Based APIs				
26	Be specific about the VA publishing / access service requirements.	RFP Section 5.5.4 includes requirements that all significant data stored in the software is accessible through API's with no requirement for creation of custom applications to specifically access VA data. RTM VA-NF-7 requires the system to support the ability to access data elements using open standard-based interfaces including legacy data. Clarification is needed to ensure the intention to pursue standards-based APIs.	Suggest adding to RFP Section 5.5.4 – “standards-based” in front of APIs.	Concur. Will negotiate with Cerner for inclusion of language.
27	Define in the contract the VA publishing / access services specifically for (1) Veteran access services (e.g., vets.gov), (2) VA clinician access services, (3) Partner access services, and (4) HIE access service.	RFP Section 5.5.2 describes identity and access management requirements including user population types and the association of specific application permissions tied to roles/positions. RTM VA-NF-6 through 48 describe specific access services required.	None.	Concur.
28	Ensure external API developers can host their apps on an app platform that is NOT controlled by Cerner (and therefore does not require Cerner licensing and approval).	RFP Section 5.1.8(d) requires the contractor analyze and propose a way forward for the capability for external apps to use HealthIntent as a data source. Section 5.5.4 requires the contractor to support data exchanges via the API gateway. Section 5.10.4.2 requires the contractor to work in good faith to integrate the EHRM with the Digital Veterans Platform API gateway.	Suggest replacing the second sentence in 5.10.4.2: “The Contractor shall integrate the EHRM to interoperate with DVP or future state VA platform.”	Concur. Will negotiate with Cerner for inclusion of language.

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29	Include requirement for Cerner to provide CDS Hooks to support open clinician workflow.	RFP Section 5.8 requires the contractor provision robust data analysis toolsets that allow, among other things, analytics and Clinical Decision Support (CDS). VA-NF-T26 requires "integration with Cerner via standards-based interfaces (including but not necessarily limited to support for FHIR APIs and/or OMG CDS API/ HL7 CDS APIs (e.g., CDS Hooks)".	None.	Concur.
30	Specify the required utility services to support intermediary or peer-to-peer services; e.g., support Veteran-directed or Veteran-mediated request, exchange, and ingestion from non-VA providers (via APIs where available).	RFP Section 5.10.4(c) requires "the Contractor shall provide a software solution enabling VA to release and consume, via on-demand access, a Veteran's complete longitudinal health record to and from DoD and connected community partners. The longitudinal record solution shall support Provider-to-Provider record sharing, as well as Provider-Veteran-Provider sharing (Veteran mediated record sharing), including appropriate consent management."	Suggest adding “, regardless of which EHR they use” after “connected community partners...to and from DoD and connected community partners, regardless of which EHR they use.”	Concur. Will negotiate with Cerner for inclusion of language.
31	Require that VA has full authority to connect any VA-approved, secure third-party app with the Cerner system, without Cerner approval.	RFP Section 5.7.1 requires the contractor provide on-site integration for devices connecting to the Contractor system. VA is fully responsible for the security of its systems and protection of its data.	Suggest adding to 5.7.1b: “including via the Digital Veterans Platform...support for VA-approved third-party apps connecting to the Contractor system, including via the Digital Veterans Platform.” Suggest adding to 5.7.1 – “g) Permit and approve connecting all VA approved secure apps without additional fees or licensing.”	Concur. Will negotiate with Cerner for inclusion of language.

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32	Ensure the API developers retain their IP rights when their API is used to connect to the Cerner interface.	<p>RFP Section 5.5.4 sets forth requirements with respect to APIs, including paragraph (e), which provides for the provision and maintenance of a Developer Portal.</p> <p>Section 5.10 generally promotes innovation while 5.10.4.2 requires the Contractor to support the Digital Veterans Platform (DVP) API gateway which is intended to provide a neutral application platform for third party APIs.</p> <p>Additional language is required to promote innovation in the creation of third party applications by removing derivative or cascading intellectual property restrictions/ constraints.</p>	Suggest adding to RFP 5.5.4(e): " and provide policies and procedures for the use of the Developer Portal(s) and APIs that promote innovative third-party API development" and "Third party API developers shall retain their IP rights when their API is used to connect to the Cerner interface, and there will be no derivative IP ownership when third parties consume Cerner terminology through open APIs."	Concur. Will negotiate with Cerner for inclusion of language.
33	Require the ability for 3rd party apps to remain connected to the Cerner system and receive automatic notification on updates (e.g., vaccination). Allow the app to connect without being cut off in accordance with VA security requirements.	RFP Section 5.7.1 requires the contractor provide on-site integration for devices connecting to the Contractor system.	<p>Suggest adding to RFP Section 5.7.1(b): "support for third-party apps connecting to the Contractor system."</p> <p>Suggest adding the following new paragraphs (ii) and (iii) to RFP Section 5.7.1(b): "ii. Provide ability for third-party apps to remain connected to the Contractor system in accordance with VA security requirements and receive automatic notification on updates; and iii. Allow the app to remain connected without interruption lasting longer than a certain period of time to be approved by the Government."</p>	Concur. Will negotiate with Cerner for inclusion of language.

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34	Incorporate the model RFP language necessary for Cerner to support the API and SMART on FHIR platform and SMART-enabled applications.	RFP Section 5.10.4 and the Requirements Traceability Matrix refer to SMART and FHIR based applications but do not incorporate all elements of the suggested functionality such as the support for standards-based embedding of external application UI (HTML5).	Suggest adding to RFP Section 5.10.4: "In addition, the software and services shall support the VA designated standards, such as SMART on FHIR and SMART-enabled applications, or published standard at the time."	Concur. Will negotiate with Cerner for inclusion of language.
Use Community Care Contracts to Foster Interoperability				
35	Before the contract is signed, get Care Act providers and Cerner competitors to commit to support the contract as early adopters.	Pre-contractual activity and pertains to future strategic discussions to drive interoperability in the marketplace.	None.	Concur.
36	Require publication of the EHRM /Cerner clinical data model in the National Library of Medicine (following the Kaiser example).	RFP Section 5.10.4.1 states: In support of the interoperability objectives under this Section, agreed upon Contractor proprietary information/data model extension points (e.g., ingestion and record APIs) may be provided to both international and national standards designating organizations as described and set forth in an applicable Task Order.	None.	Concur.
37	Require the Veteran to be able to invoke their right of access to data as the intermediary to support data exchange (e.g., pull through their API on phone and push to their community care provider).	RFP Section 5.7.1 requires support to Veterans ensuring they can effectively navigate the HealtheLife patient portal and Wellness programs to effectively manage their health.	Suggest adding to RFP Section 5.7.1(c): "using mobile apps, thin-client and thick-client solutions" and "Veterans shall be able to enable sharing of their health data with their community care providers in accordance with all VA-designated national standards."	Concur. Will negotiate with Cerner for inclusion of language.

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38	Require Cerner and the Community Care provider applications provide bi-directional health information in exchange for using the VA-provided API gateway.	<p>RFP Sections 5.10.1, .2, and .3 require support for innovation and other development activities.</p> <p>Section 5.10.4(c) requires "a software solution enabling VA to release and consume, via on-demand access, a Veteran's complete longitudinal health record to and from DoD and connected community partners."</p> <p>VA-NF-61, -63, and -65 requires bi-directional interface in support of Pharmacy. This requirement can be fulfilled by a flat file and does not require the data to be computable.</p>	Suggest adding to RFP Section 5.10.4(c): "The bi-directional health information exchange shall maximize use of discrete data that supports context-driven clinical decisions and informatics."	Concur. Will negotiate with Cerner for inclusion of language.
39	Shift VA policy enabled by the Choice Care Act from "Opt-In" to "Opt-Out" such that the starting assumption is that data can be shared unless the Veteran "opts out."	Review and revise VA policy.	None.	Concur.
Other				
40	Analyze and understand the operational cost to VA to implement and operate under the proposed solution.	Analysis of cost information is not part of a IDIQ contract. It will be done as part of the standard PMO processes.	None.	Concur.

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41	Incorporate requirement that subsequent updates and improvements to the Cerner solution is part of the baseline contract (and cost).	RFP Section 5.2.3 Software Maintenance requires: The Contractor shall provide its commercial support and maintenance services described in its End User License Agreement. Leveraging Contractor's best practices and agreed upon upgrade schedule between DoD and VA, software maintenance includes all releases of the software such as major releases, minor releases, maintenance releases.	None.	Concur.
42	Address the differences between federal and state privacy laws - policy that Federal laws take precedence over state laws.	Federal and state privacy laws can only be addressed through legislation.	None.	Concur.
43	Ensure VA has no gag order: Require Cerner to allow open, public sharing/reporting (e.g., screen shots) on issues or errors with the EHR solution (e.g., if there is a known anomaly, that anomaly and its work-around is shared with the Cerner user community).	RFP Section 5.3.3 - System Quality and Performance Measures and Monitoring is appropriate to capture this requirement. There is no explicit contractual language requiring the contractor to disclose issues or efforts, nor is there language explicitly preserving the right of VA to share such information.	Suggest adding to RFP Section 5.3.3: "Contractor is responsible for reporting all issues or errors associated with the EHR solution and acknowledges and agrees that errors shall not be considered confidential, proprietary or trade secrets, and accordingly, shall be releasable to VA or its agents. VA retains the right to share any issue, error or resolution approach."	Concur. Will negotiate with Cerner for inclusion of language.
44	Define the way ahead for 3rd party apps (sunset, rebuild and transition) during the Cerner transition.	This should be evaluated in congruence with the legacy transition plans (pivot plans) of existing systems to Cerner.	None.	Concur.
45	Emphasize the need and resource commitment to achieve clinician consensus, change management, and culture.	RFP Section 5.5.7 Organizational Change Management includes a detailed approach to clinician consensus, change management and culture change.	None.	Concur.

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46	Develop a roadmap for all EHR vendors that specifies how Veterans and providers access and share their data and get that data from A to B. This is not limited to the Cerner solution, but includes legacy and community care systems.	These tasks are not part of the IDIQ and will be addressed via Data Migration Plan and Data Management Strategy across VA.	None.	Concur.
47	Require ability for VA to innovate using the Cerner solution, including support to a Veteran Interoperability Partnership Lab.	<p>RFP Section 5.10: Innovation and Enhancements includes an innovation process, categories and development activities to enable VA innovation activities using the Cerner solution. The language is sufficiently broad to support issuance of a Task Order requiring the Contractor to support interoperability activities including a Veteran Interoperability Partnership Lab.</p> <p>MITRE recommends this lab be independently managed and used to support 3rd party innovators, demonstrate interoperability solutions, validate the effectiveness of interoperability solutions in an end-to-end clinical use case context, and serve as a reference architecture to allow 3rd party stakeholders to exercise innovations.</p>	None.	Concur.

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48	Understand how Cerner will manage data quality, including provenance, error bounds, data looping, security, etc.	<p>The RFP Section 8.6 refers to the use of Quality Assurance Surveillance Plans (QASP), which is intended to establish Contractor accountability to what VA requires and values.</p> <p>VA-NF-T46 requires “The system shall support provenance (chain of custody or ownership) and pedigree (processing history how the data was produced or incorporated) and enable identification, collection, and production of data according to source, custody and ownership and display of data in business, logical, legal or physical models.”</p>	None.	Concur.

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49	<p>Understand how Cerner will provide VA with access to the data model, share data for analytics freely to 3rd parties, increase the amount of computable data exchanged with 3rd parties.</p> <p>Panelists acknowledged this recommendation is a stretch goal.</p>	<p>RFP Section 5.8 address the support to business intelligence and data analytics. Section 5.10.4.1 supports the sharing of Contractor proprietary information/data model extension points (e.g., ingestion and record APIs) with both international and national standards designating organizations. However, current language does not require access to the EHRM data model, supporting understanding of and therefore increase the exchange of computable data with community care providers.</p>	<p>Suggest adding to RFP Section 5.8: “h) Provide VA EHRM data model, underpinning terminology model, tables, definitions, and examples of fully populated Veteran data files. Provide documentation or software that is used for quality checks and that illustrate what data elements are computable.”</p> <p>Suggest adding to Section 5.10.4.1: “n) The Contractor shall support Knowledge Interoperability by supporting the extension of clinical content assets such as terminologies, clinical decision support rules, order sets, etc. This includes the ability to curate, extend, and share that knowledge with clinical partners. This fosters rapid adoption from industry best practices, e.g., clinical professional societies.”</p> <p>Suggest VA obtain a price from the Contractor to provide a report explain the steps involved in accessing the data model, including producing an example data file, and demonstrating how much of the data is computable; provide cost estimates for outside parties to access the data via this mechanism.</p>	Concur.

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50	Understand how the Cerner EHRM solution will improve Veteran and clinician experiences.	<p>RFP Section 5.2.1 describes the EHR application, however does not specifically focus priorities on the Veteran and clinician experience as captured in end-to-end use cases.</p> <p>Section 8.6 refers to the Quality Assurance Surveillance Plans, which include Functional and Non-Functional Key Performance Indicators (KPIs). These KPIs will reflect VA priorities which include improvement of both Veteran and clinician experiences.</p>	Suggest adding to RFP Section 5.2.1.1: “k) Provide for the ability to measure the EHRM performance that contributes to any end-to-end use case, thereby capturing its impact on improving a Veteran and clinician experience.”	Concur.

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Appendix D: Acronyms

API	Application Programming Interface
CCHIE	ClinicalConnect Health Information Exchange
CDS	Clinical Decision Service
DoD	Department of Defense
EHR	Electronic Health Record
EHRM	Electronic Health Record Modernization
FHIR	Fast Healthcare Interoperability Resources
HIE	Health Information Exchange
HL7	Health Level Seven International
IP	Intellectual Property
IT	Information Technology
PWS	Performance Work Statement
RFP	Request for Proposal
UPMC	University of Pittsburgh Medical Center
VA	Department of Veterans Affairs
VACO	VA Central Office
VHA	Veterans Health Administration

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To: Cussatt, Dominic (SES) </o=va/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=vacocussad>; Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=vacosandoc>
Cc:
Bcc:
Subject: FOIA request & planned release of the Mitre Report
Date: Thu Sep 06 2018 07:50:38 EDT
Attachments: VA EHRM Interoperability Review Report Jan 2018 FINAL.PDF

Camilo, Dom,

Good morning. I am also the acting FOIA officer for OEHRM. We have received three separate FOIA requests for the attached Mitre report and now that our contract is awarded and upon review by John Windom we are preparing to release the entire document without any redactions. We are sharing this document with you in advance for your awareness, no action is required. VHA leadership has also received a similar email.

Please let me know if you have any questions.

Warm regards,

Fred Mingo

VA Office of Electronic Health Record Modernization (OEHRM)

Director, Program Control

Acting FOIA Officer

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Document ID: 0.7.1705.689785-000001

Owner: Mingo, Fred J., Jr. </o=va/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=vacomingof>

Filename: VA EHRM Interoperability Review Report Jan 2018 FINAL.PDF

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Department of Veterans Affairs Electronic Health Modernization

Request for Proposal Interoperability Review Report



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Document Number: MTR180033

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**McLean, VA
January 2018**

Sponsor:
Department of Veterans Affairs

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VA EHRM RFP Interoperability Review Report

January 31, 2018

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VA-18-0298 and VA-18-0299-H-000374

Executive Summary

This Review Report presents responses to three requests from the Department of Veterans Affairs (VA) to MITRE related to the topic of interoperability within the VA Electronic Health Record Modernization Request for Proposal:

- I. Conduct an external Interoperability Review Panel to review the interoperability language in the existing Request for Proposal (RFP),
- II. Engage an independent and unbiased legal expert to identify the specific changes to the RFP language necessary to implement the recommendations from the Interoperability Review Panel, and
- III. Visit the University of Pittsburgh Medical Center to understand the existing operational multi-vendor solution and interoperability solutions for applicability and scalability to the VA.

I. Interoperability Review Panel

In support of the Secretary of Veterans Affairs, David J. Shulkin, M.D., The MITRE Corporation convened and hosted a VA Electronic Health Record Modernization (EHRM) Request for Proposal (RFP) Interoperability Review Panel on January 5, 2018, at MITRE's McLean headquarters. The invited external senior electronic health record (EHR) interoperability subject matter experts (the Panel) reviewed the interoperability language in the existing RFP and developed joint suggestions and recommendations for VA to consider for incorporation to support the successful execution of a new commercial EHR contract with industry. The Panel affirmed that the primary goal should be seamless Veteran-centric healthcare achieved through true EHR interoperability. Achieving this goal rests on three overarching principles that should be supported by interoperability language in the RFP: 1) free and open access to data, 2) an ecosystem that provides fair access to third parties by creating a level playing field, and 3) a seamless Veteran and health provider (clinician) experience. Four categories of recommendations from the Panel (the first three to the interoperability language in the RFP, and the fourth for future VA contracts) will enable VA to realize this goal on the basis of the underlying principles: 1) commit to full VA-Department of Defense (DoD) interoperability, 2) leverage current and future standards, 3) commit to open, standards-based application programming interfaces (APIs), and 4) use Care in the Community contracts to foster interoperability.

For the first category (commit to full VA-DoD interoperability), the Panel agreed that the Determination and Findings signed by Secretary Shulkin on June 1, 2017, represented the correct approach to interoperability within VA and between VA and DoD. The Panel strongly endorsed the proposed VA "API Gateway" language. The most important specific recommendations included:

- Define the degree of interoperability the solution will provide, ranging from basic file sharing to fully interchangeable, integrated and functionally identical patient records.

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Suggest that the Contractor conduct an annual Interoperability Self-Assessment against current and future standards that shall be specified by the VA; and

- The contract language should include the following elements:
 - performance measures to hold Cerner accountable for reducing the administrative burden in clinician workflow with the objective of increasing efficiency,
 - ability for bulk data export based on standards, with no proprietary formats (e.g., Flat FHIR [Fast Healthcare Interoperability Resources]), and
 - “push” capability to insert patient data back into the VA EHR / Cerner database.

For the second category (leverage current and future standards), the following specific recommendations were among the most important:

- Require that Cerner implement all standards as defined by VA, current and future,
- Engage Cerner as an advocate of the VA and DoD position in all relevant standards-making bodies, and
- Ensure that VA and Veterans have complete access to data.

For the third category (commit to open, standards-based APIs), the Panel voiced the following recommendations:

- Establish clear publishing and access service requirements,
- Provide a VA application platform that supports APIs from third party providers with no barrier to entry, and
- Require implementation of clinical decision support (CDS) Hooks to invoke decision support from within a clinician's EHR workflow.

The body of this report contains multiple additional specific recommendations.

II. Recommendations for RFP Changes

MITRE engaged Morrison & Foerster, LLP as the independent and unbiased legal expert to identify the specific changes to the RFP language necessary to implement the recommendations from the Interoperability Review Panel. Appendix C presents all recommended changes to the RFP.

III. Observations from University of Pittsburgh Medical Center Site Visit

A delegation from VA and MITRE traveled to Pittsburgh, Pennsylvania, on January 19, 2018, for a meeting with representatives from University of Pittsburgh Medical Center (UPMC) Enterprises to discuss aspects of EHR interoperability that UPMC has successfully implemented over the past several years. The report includes an overview of those practices.

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IV. Closing Thoughts and Suggested Next Steps

The Panelists noted that VA cannot achieve true future EHR interoperability through the Cerner RFP alone, or through technology alone. The state of practice today shares only a small portion of available patient data. For VA to succeed in the future, multiple other components must be present and aligned: innovation, policy, standards, customer buy-in, and legislation, to name a few.

The following next steps are recommended for VA consideration:

1. Complete the RFP revisions, conduct appropriate negotiations with the Contractor expeditiously, and complete the contract process as planned. Stand firm during negotiations to maximize ease of access to data and data models for building third party APIs, applications, and services for future community innovations.
2. Continue to work with other federal government agencies and departments with similar interoperability interests and concerns, including, but not limited to, the White House, DoD, Food and Drug Administration (FDA), Centers for Medicare and Medicaid Services (CMS), Office of the National Coordinator for Health Information Technology (ONC), and other parts of the Department of Health and Human Services, to align approaches to EHR interoperability and the development and support of standards government-wide.
3. Support future innovation approaches, including concepts such as an Interoperability Laboratory and outreach to the broader innovation ecosystem (major medical centers, academia, traditional and non-traditional healthcare providers, startups, individual entrepreneurs, others). It is critical to align the innovations planned in VA's Digital Veterans Platform to the VA EHR innovation efforts to ensure consistent continuous improvements to clinician and Veteran health experiences.
4. Create an External Review Panel to provide expert continuous guidance, review, and feedback over the course of the implementation, to help capture best practices from the expert community going forward. Conduct ongoing demonstrations of end-to-end Veteran use cases requiring data sharing across organizational boundaries to validate improvements in Veteran healthcare and reduction of burden for healthcare providers. VA and Contractor will ensure that Federal Advisory Committee Act (FACA) guidelines are followed in leveraging any external review panels.

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VA-18-0298 and VA-18-0299-H-000379

Background

The Department of Veterans Affairs (VA) plans to establish seamless care for Veterans throughout the health care provider market. Seamless care requires interoperability between the Department of Defense (DoD), VA, VA affiliates, community partners, electronic health record (EHR) providers, healthcare providers, and vendors. VA directed The MITRE Corporation to independently review the capability of Cerner's proposed EHR solution to seamlessly transmit health records between EHR systems supporting healthcare providers who both use and contribute patient data to a Veteran's health record, to include Veterans Choice Program (VCP) community-care service providers and VA affiliates. This Review Report presents responses to three requests:

- I. Conduct an external Interoperability Review Panel to review the interoperability language in the existing Request for Proposal (RFP),
- II. Engage an independent and unbiased legal expert to identify the specific changes to the RFP language necessary to implement the recommendations from the Interoperability Review Panel, and
- III. Visit the University of Pittsburgh Medical Center to understand the existing operational multi-vendor solution and interoperability solutions for applicability and scalability to VA.

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I. Interoperability Review Panel

Introduction

In support of the Secretary of Veterans Affairs, David J. Shulkin, M.D., MITRE convened and hosted a VA Electronic Health Record Modernization (EHRM) Request for Proposal (RFP) Interoperability Review Panel on January 5, 2018, at MITRE's McLean, VA headquarters. MITRE invited external senior EHR interoperability subject matter experts (hereafter referred to as Panelists) to review the interoperability language in the existing RFP and to develop joint suggestions and recommendations for VA to consider incorporating into the RFP to support the successful execution of a new commercial EHR contract with industry. Eleven Panelists took part in person, and several senior government executives observed the process (see Appendix A for the full list of participants).

Goal

The Interoperability Review Panel sought to provide Secretary Shulkin and his senior leadership team with insights into key best practices and guidance from national experts regarding EHR interoperability. The Panel evaluated the corresponding language in the draft RFP based on successful business transformations and implementations of a new commercial EHR system across a distributed hospital and provider network. This section of the report summarizes the outcome of the Panel: expert recommendations that will inform VA's interoperability contract language. The document also provides actionable and specific best practice recommendations and rationales to enable successful acquisition and implementation of EHR interoperability.

Methodology/Approach

The first part of the session, which lasted for five hours, was conducted as a fish-bowl exercise and was guided by Chatham House Rule. The Panelists sat at a center table, with VA and other government observers sitting at surrounding tables. The second part, which lasted two hours, consisted of a summary debrief to the Secretary and senior VA leadership. The Secretary could ask questions and engage with the Panel throughout the second session. MITRE moderated the session to elicit inputs from all Panelists and to drive alignment toward consensus in the recommendations.

The agenda for the first portion of the session was structured to elicit inputs from all Panelists, with notes captured on-screen as redlines to the RFP interoperability language to ensure recommendations accurately reflected the Panelists' contributions. Subsequently, in a facilitated discussion, the Panelists grouped their recommendations into specific categories in real time. The second portion, as noted, provided opportunities for the Secretary to discuss the recommendations in additional detail.

This section of the report summarizes the discussion that took place. It highlights actionable changes to the interoperability language contained in the RFP and additional recommendations and lessons learned that can enable interoperability of the VA EHRM solution. Text boxes

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throughout the report present direct quotations from Panelists. To ensure participant confidentiality, MITRE has destroyed the transcript and event recording used to develop this report.

Topic Area: VA Definition of Interoperability

The key to modernization is creating greater interoperability with Governmental partners, including DoD, in a way that focuses efforts in support of the Veteran's journey, beginning with their military service. We will partner with others to ensure Veterans can get their benefits, care, and services consistently, easily, and with excellent customer service, no matter where they are throughout their lives. VA will work with local communities, and with other Federal, State, Tribal, and Local Government entities to ensure Veterans get what they need. VA will also continue to leverage the private sector where appropriate and needed to deliver the very best outcomes for Veterans.

– draft VA 2018–2024 Strategic Plan

Enable data sharing, interoperability, and agility through data standardization

VA needs to allow data sharing among various business applications, such as appointment scheduling and business intelligence, as well as ensure transportability of information between sites. Panelists advised VA to leverage and support the best-in-class innovation currently in use within the VA culture. VA must also enable interoperability as the Department integrates the EHR into other supporting systems, both within the VA network and with external health service providers. Agility is necessary for adoption of future innovative technologies and/or if VA wants to upgrade or change the EHR approach. The Panelists cautioned that the current EHR technology is already 20 years old and, as with all industries and information technology (IT) solutions, many possibly disruptive technologies exist on the horizon.

"It really optimizes transportability of best practices, because if you are trying to transfer best practices from one site to another and you have the same system where the best practice is going to land, then it is much easier."

The session began with a discussion on interoperability as currently defined by VA (Figure 1). Prior to establishing a roadmap to inform a nationwide plan to advance health data interoperability, VA must first ensure system-wide interoperability across the Department. Throughout the Review Panel session, the Panelists described and referred to this concept as "Level 1 Interoperability" throughout the Review Panel session; it includes migration of Veteran data from ~130 instances of the Veterans Health Information Systems and Technology Architecture (VistA) to one VA platform.

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Figure 1. VA Definition of EHR Interoperability

“Level 2 Interoperability,” as described in the Panel discussion, addresses the ability for VA to leverage the same Cerner platform used by DoD to ensure seamless care from active service to Veteran status. Once this capability is implemented, the clinical data transformation will allow a true longitudinal view of a Veteran’s record as he or she transitions from DoD to VA for care and other critical services such as benefit adjudication.

“Level 3 Interoperability” will allow both VA and DoD to take an important step toward transforming electronic patient data exchange on a national scale. With the utilization of community healthcare providers via the VA Community of Care initiative and DoD’s Tricare network providers, VA has the opportunity to drive interoperability between DoD and VA as well as with the extensive network of healthcare providers that serve our Nation’s Veterans, active duty service members, and their beneficiaries.

True nationwide EHR interoperability for the entire United States is the ultimate goal, and the Panelists agreed that VA and DoD could reach this goal if the three aforementioned levels of interoperability are achieved. Here, VA has the opportunity to drive clinical transformation and instantiation of a complete EHR for all patients at the national level.

Topic Area: Commit to Full VA-DoD Interoperability

The Panel focused primarily on reviewing the interoperability language within the RFP for the Cerner contract. However as described in Interoperability Levels 1 and 2, the commitment to the seamless integration of VA and DoD health data represents the foundation required to realize interoperability with private sector

“You really have to get the basics done first. Let's just make absolutely sure that the interoperability between DoD and VA [is achieved].”

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healthcare providers.¹ It is important to note that the interoperability levels can be addressed simultaneously and should not be separated, as they must be integrated to efficiently achieve the larger future data sharing ecosystem.

Specify the expectations for interoperability between DoD and VA

During discussions about the expectation that Cerner will provide a single EHR solution to be shared by both DoD and VA, the Panel raised concerns about the lack of specificity in the contract language. Current interoperability data standards address a subset of the Veteran's clinical record and VA has the opportunity to ensure Cerner provides interoperability of all discrete data, at a minimum, between VA and DoD. Adopting the same platform would increase seamless sharing, but the Panel stated that VA should take additional action to ensure that such sharing is realized. The DoD and VA systems should use proprietary database-to-database interoperability if necessary, to maximize interoperability between those two systems. These systems should be configured to meet the distinct needs of each while being connected to each other in a native database-to-database method as necessary, leveraging open interoperability standards wherever possible. As a result, clinicians should experience no differences when they move from a VA system to a DoD system. These data should also be computable, or be made computable according to a specific schedule. VA should consider adding language to the RFP that specifically defines the degree of interoperability the solution will provide, ranging from basic file sharing to fully interchangeable, integrated and functionally identical patient records.

The Panelists also stated that, for VA and DoD collectively, the contractual language should include the following requirements:

- Performance measures to hold Cerner accountable for reducing the administrative burden in clinician workflow with the objective of increasing efficiency
- Capability for bulk data export based on standards, with no proprietary formats (e.g., Flat FHIR [Fast Healthcare Interoperability Resources])
- “Push” capability to insert new patient data back into the VA EHR / Cerner database.

Pivot the RFP to be Veteran-centric and not system-centric

The Panelists discussed the impact of EHR implementations on clinician workflow, describing the issue as one of approaching the implementation as an IT system implementation rather than the preferred Veteran- or clinician-centric implementation. The current RFP appears to be written in a system-centric way rather than leveraging use-cases to describe the Veteran or clinician experience or workflow to characterize the requirement. The Panelists recommended that VA incorporate use-cases to characterize requirements and amend the RFP language to emphasize the Veteran-centric objectives. In addition, Panelists noted that VA should recognize that EHRs do not currently maximize efficient clinical workflow, and that VA specify that the

¹ Healthcare providers is used to refer to community based physicians/specialist and hospitals.

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solution present clinicians with relevant information where needed with a minimum number of “clicks to find.”

Topic Area: Leverage Current and Future Standards

The integrated EHR platform that DoD and VA are implementing provides the opportunity to significantly influence interoperability standards across the healthcare community, addressing gaps and competition among current standards. The Panel recognized that commercial health systems and technologies would realize only limited business value from making data portable between them, but this would lower the barrier to patient movement among healthcare providers.

Engage Cerner as an advocate of the VA and DoD position in all relevant standards-making bodies

The Panel recommended increased VA presence and leadership in national health IT standards-making activities, in coordination with the DoD. Additionally, VA should encourage Cerner to serve as an active advocate of the VA-DoD position and to participate actively in the development and/or evaluation of new standards, policy directives, operating procedures, processes, etc. As an integrated voting bloc, VA, DoD, and Cerner will have the potential to act as a strong driver of national standards. Panelists understood that VA is not currently active in the FHIR community or in the Health Level Seven International (HL7) Argonaut Project.

In addition, Panelists identified a need for standards to exchange patient-reported outcome data for integration into the clinician’s workflow. The current RFP language seemingly puts the burden on Cerner for the development of standards, and the Panel recommended that VA take a more active position. This will ensure that VA will participate and drive implementation when standards mature. Where standards are immature, VA must participate in efforts to accelerate standardization.

Require Cerner to implement all standards as defined by VA, current and future

Because it is unclear where health IT is heading in five years, the Panel strongly suggested VA include contract language to address possible future advancements in the form of standards as defined by VA. At a minimum, VA should seek maximum interoperability with community care organizations, using open interoperability standards wherever possible. This flexibility would ensure that VA does not rely on external stakeholders to determine the standards that VA would be required to accept. The Panel recommended that VA pay particular attention to specific categories of standards: real-time data read/write by care providers and Veterans; interoperability tools; seamless DoD and VA vision records; and principles for data normalization and structure. The Panel also recognized Cerner’s influence in ensuring that the CommonWell network interoperates at the highest possible levels with other networks including CareQuality—an influence that VA should continue to promote.

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VA must own its data; clear ownership and access are critical to success now and in the future

The Panel highlighted an important recommendation regarding data rights that was discussed in the prior VA EHRM Listening Forum on September 7, 2017. The Panel recommended that VA define who has what rights from the perspectives of data ownership, access, and sharing (e.g., VA owns the data and all data products vs. community care providers own the patient data vs. each Veteran owns all of his or her data). Determining the authoritative data source for the various elements of a Veteran's health record is an important Veteran-centric component of interoperability, the longitudinal record, and seamless access to data.

VA should define an enterprise-wide policy for all VA data. A suitable policy would include, but not be limited to, EHRM-specific data, and should be issued by the VA Central Office (VACO) or Veterans Health Administration (VHA). VA must have clear ownership of and access to all the information in the EHR and be able to move that information (into new systems or among systems) as needed, now and in the future. Owning the data ensures that it is available regardless of vendor or system. VA must include this in the Cerner contract. Technology innovations occur rapidly in the 21st century, and VA must have full ability to move its data to future systems.

Panelists also recommended that VA publish its data model, for instance to the National Library of Medicine, to further promote commercial interoperability investments. Lastly, Panelists encouraged VA to leverage its investment in the Open Source Electronic Health Record Alliance (OSEHRA) by providing seed money to develop open source connectors between Cerner and Epic, which would encourage other vendors to join in the effort.

“So, what you need is clear access and clear ownership of your information...you need to have absolutely, undisputed, clear ownership and ability to move the data to any place you want to use it and use it in any way you want to use it when you get there. And not have them [Cerner] be able to say no, that’s our data or hinder you in any way or have an unreasonable charge to get it.”

Topic Area: Commit to Open, Standards-Based APIs

A significant technology enabler of seamless interoperability among the community of Veteran healthcare providers is the use of Application Programming Interfaces (APIs). These software intermediaries allow disparate EHR applications to communicate with each other and exchange data using standard, defined forms. The Panel emphasized the need for VA to create an environment that would minimize additional costs to community providers in order to interoperate with VA. VA can accomplish this by requiring the new EHR system to expose APIs that support bi-directional data transactions. The Panel further recommended that VA make a commitment to open, standards-based APIs, including the SMART on FHIR/Argonaut APIs, to facilitate the ready and efficient exchange of data with partners providing care in the community and to support open clinical workflow.

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Establish clear publishing and access service requirements

The Panel recognized that data access requirements differ depending on who provides or accesses that data.

Therefore, the Panel recommended that VA be more specific in defining each level of data publishing and access service that is specific to (1) Veteran access (e.g., use of vets.gov); (2) VA clinician access; (3) partner access; and (4) Health Information Exchange (HIE) access. The RFP should include a clear description of identity and access management requirements, including user population types and the association of specific application permissions with particular roles/positions.

Machine-to-machine access is also critical for efficient sharing of information. The Panel recommended that VA ensure that all significant data stored in the software be accessible through APIs with no requirement for creation of custom applications to specifically access VA data. From a forward-looking perspective, VA should require that the EHR system support the ability to access data elements using open standards-based interfaces, and include the ability to interface with legacy data, patient-generated data, and third-party data that resides outside the EHR system. In addition, Cerner should provide the required utility services to support intermediary or peer-to-peer services (e.g., support Veteran-directed or Veteran-mediated requests, data exchange, and ingestion of data from non-VA providers).

“The Contractor should provide all of the data that is currently being provided in the Contractor's patient portal to the consumer via an open standards-based API gateway. The Contractor should also provide all of the reporting data required by federal law to the Veteran via an open standards based API framework, accessible via any application or third-party data store of the Veteran's choice, that's number one.”

Provide a VA application platform that supports APIs from third-party providers with no barrier to entry

Currently vets.gov serves as a portal to Veteran services. The Panel recommended that VA consider using such a portal to connect any third-party application to the EHR solution without requiring fees or vendor permissions. VA should have full

authority to connect any third-party application through one of the standard open APIs conformant with the vendor's API without pre-registering the application with the vendor. This is a very important authority to have in terms of the ability to innovate rapidly, without constraints.

“The API Gateway document is awesome ... world class and future looking.”

The Panelists also reviewed the proposed VA “API Gateway” language provided during the API discussion to anchor the dialogue and concurred that this requirement is fundamental to supporting interoperability. The Panel strongly endorsed the “API Gateway” language. Specifically, the Panelists recommended that VA include a requirement that VA have full authority to connect any third-party application to the Cerner system without requiring prior approval by Cerner. Furthermore, VA should ensure that developers of third-party applications connecting to the VA system via the open standard and VA-defined APIs continue to own their

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intellectual property (IP). From a usability perspective, the Panel also recommended that VA be able to establish the connectivity business rules, such as the ability for applications to remain connected for a reasonable time frame (e.g., 1 year) and to receive automatic notification about patient information updates.

Require implementation of Clinical Decision Service (CDS) Hooks to invoke decision support from within a clinician's EHR workflow

EHRs are essential to efficient delivery of high-quality care, as they provide the clinician with essential decision data at the time required. However, current EHR systems approach workflow from an IT system perspective rather than a clinician's perspective. The latter workflow should, of course, be paramount in the VA EHR implementation, and should also leverage a recent innovation called CDS Hooks. This technology provides the clinician with context-driven decision support and capability by enabling the EHR to trigger third-party services at key events that include ordering medication and opening a patient face sheet. For example, when the VA clinician begins to prescribe medication, a CDS Hook can call an external service that presents the clinician with the list of medications already prescribed to the patient by clinicians outside VA. The Panelists strongly recommended that VA require Cerner to implement and use CDS Hooks within the clinician workflow.

Topic Area: Use Community Care Contracts to Foster Interoperability

The new EHR system must be able to communicate with other EHR systems (e.g., Epic, AllScripts, etc.) within the care community. It is critical that VA ensure the Cerner EHR system remain robust for future interoperability with new products. Cerner must commit itself to supporting other forms of interoperability, such as a presentation layer that is common to other systems (e.g., the App store model). The Panel recommended that prior to execution of the Community Care Act contract VA require third-party providers (and Cerner competitors) to commit to supporting the contract as early adopters.

"Innovations going forward are going to come from multiple directions. And having those interfaces, and going with a general interoperability approach that doesn't fork off from what's happening in the rest of the healthcare system, will allow the Veterans to benefit from technology whether that's coming from Google, from a new company, from an innovative shop within VA -- you end up creating a market with good prices, high value."

Veterans must be able to access and download a computable form of their health data

Panelists noted that access to data represents the biggest problem today. VA must clearly direct Cerner to expose data so it can be used by third parties. In the contract and in conversations with Cerner and third parties, VA must require specifics regarding how Veterans and providers will

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access and share their data. In addition, VA must require that any agreements leave the door open for future standards and technologies.

Panelists believed that VA could achieve this by invoking the principle that the data belongs to the Veteran, rather than by citing specific technologies and standards (given how rapidly they are evolving). Veterans must be able to invoke their right of access to data to support data exchange across all providers (e.g., pull data through an API on their smartphone and push it to their community care provider), now and in the future. Keeping pace with this requirement will drive continual innovation by Cerner and all providers.

VA must own the API layer

Cerner ownership of the API layer (across every customer) poses a real threat to achieving interoperability, speed of innovation, and cost efficiency throughout the network of community care providers. Panelists stated that it is of utmost importance that VA include specific language stipulating that VA and Veterans be able to use third-party applications without having to register them with Cerner. VA must control the API key, not Cerner.

Additionally, VA should require that Cerner provide access to MPages, a developer toolkit, and a programming interface that will enable innovators and third parties to develop APIs.

Require that community care contracts include VA EHR standards to support bi-directional data sharing

Panelists agreed that requiring the support and collaboration of community care providers and participating actively in health IT standards bodies would give VA the opportunity to advance the “national” standard for data sharing—closing any gaps and inconsistencies among federal, industry, and inter-industry standards. VA must require every provider in the chain of a Veteran’s care to support the same standards for data interoperability in order to ensure seamless, best possible care for Veterans. This includes the requirement that all providers and third-party applications, in exchange for using the VA-provided API gateway, provide bi-directional health information back to VA that can be used for context-driven clinical decisions and informatics.

Change the data exchange consent model from “opt in” to “opt out”

To encourage seamless interoperability across all entities providing care to Veterans, the consent model for exchanging data between healthcare providers must be modified to follow an opt-out rather than an opt-in policy, which limits participant numbers. This would allow Veterans to invoke their individual right of access under the Health Information Portability and Accountability Act (HIPAA) to move their data as needed. Many states have already adopted an opt-out consent policy as part of their HIE.² VA can achieve this by aligning its policy to an opt-

² See https://www.healthit.gov/sites/default/files/State%20HIE%20Opt-In%20vs%20Opt-Out%20Policy%20Research_09-30-16_Final.pdf

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out model, supported by the new VA proposed rule³ to allow HIEs to collect a Veteran's consent and electronically attest to the consent to VA in order to obtain the required EHR.

Topic Area: Additional Contract Changes

In addition to the recommendations in the prior sections, the Panelists encouraged VA to add further definitions and clarity in the following areas:

- Require Cerner to provide VA with full read and partial write access to all data elements within the EHR, at VA's sole discretion.
- Require Cerner to make the VA data model, standards, and other similar interoperability changes available in all other non-VA Cerner instances of its EHR platform.
- Clearly define "enabling security framework" so that users know if this means a specific security framework such as those provided by the National Institute of Standards and Technology (NIST), HITRUST, etc.
- Amend "national Common Trust Framework" to specifically refer to the intended source. The Panelists suggested that VA replace this wording with "Trusted Exchange Framework and Common Agreement (TEFCA)" as specified in the 21st Century Cures Act.
- Amend RFP Performance Work Statement (PWS) Section 5.10.4(i) to clarify if the "provider collaboration via secure e-mail using Direct standards" is limited to the Direct protocols and just the Cerner platform.
- Incorporate the model RFP language necessary for Cerner to support the API and SMART on FHIR platform and SMART-enabled applications, as described in Appendix B.

³ See <https://s3.amazonaws.com/public-inspection.federalregister.gov/2018-00758.pdf>

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II. Recommendations for RFP Changes

MITRE engaged Morrison & Foerster, LLP, as the independent and unbiased legal expert to identify the specific changes to the RFP language necessary to implement the recommendations made by the Interoperability Review Panel. MITRE provided Morrison & Foerster, LLP, with the summary recommendations and a copy of the RFP.⁴ In addition, MITRE collected specific ideas for contract language from the Panel. Appendix C presents all recommended RFP changes.

⁴ *Performance Work Statement for the VA Electronic Health Record Modernization System*, Final Version 1.7, Amendment 03, December 4, 2017, Department of Veterans Affairs. File name: 001 - VA EHRM IDIQ PWS (Amended 12.04.2017) - Copy.docx

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III. Observations from University of Pennsylvania Medical Center Site Visit

A delegation from VA and MITRE traveled to Pittsburgh, Pennsylvania, on January 19, 2018, for a meeting with representatives of UPMC Enterprises to discuss aspects of EHR interoperability that UPMC has successfully implemented over the past several years. The VA team, led by John Windom, included Dr. Ashwini Zenooz, (b)(6) John Short, and (b)(6). The MITRE group included Richard Byrne, Jay Schnitzer, (b)(6) and (b)(6). The hosts at UPMC included Dr. Rasu Shrestha, C. Talbot Heppenstall, Jr., Ed McAllister, Dr. Robert Bart, Adam Berger, Diane Michalec, Phyllis Szymanski, and Dr. Amy Urban, as well as additional staff.

The meeting was broken into four parts. Following introductions, Session 1 described the structure of UPMC. Session 2 covered UPMC's last decade of interoperability, and Session 3 centered on the road ahead for UPMC and industry.

Dr. Rasu Shrestha began the meeting by making the introductions and setting the agenda. He stated that UPMC's approach had followed a best-of-breed strategy, as opposed to a best-of-suite strategy, with the intention of failing fast and succeeding often. The overall UPMC structure has four parts: provider services, insurance services, international activities, and enterprises.

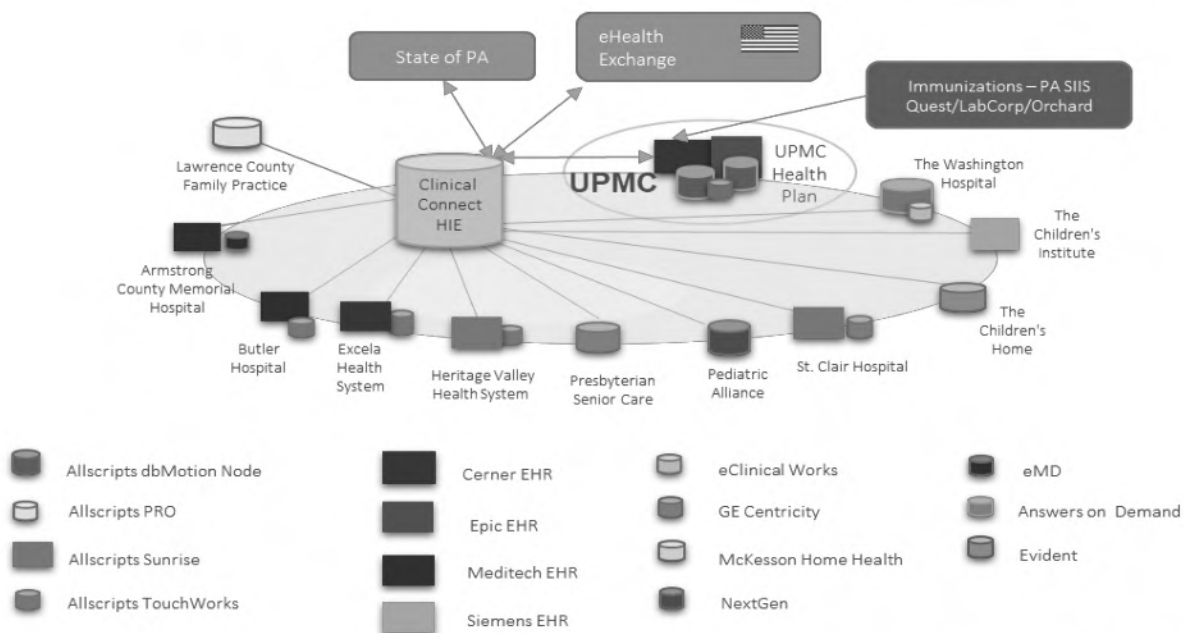
During the discussion of interoperability, the UPMC team described its approach to interoperability, called Connected Healthcare, which is based on the commercial product dbMotion of AllScripts. UPMC has created an entity titled ClinicalConnect HIE (CCHIE) that uses HL7. ClinicalConnect exists as a separate 501c(3) company, of which UPMC is a member. CCHIE contains 90 live interfaces. This HIE went live in June 2012; its members consist of 10 hospitals. It competes with three other HIEs in Pennsylvania. The repository contains data on 8.3 million patients, and, in terms of patient consent, CCHIE uses an opt-out model. It currently has connections to four EHRs: Cerner (two versions), Epic, and Varian. Data available within CCHIE spans allergies, clinical documents, diagnosis, encounters, immunizations, labs, medications, problems, and procedures. Much of this data is in the form of documents (Continuity of Care Document (HITSP C32 CCD format, including problems, allergies, and medications); unstructured clinical documents (HITSP C62 format); Consolidated Clinical Document Architecture (C-CDA CCD, including problems, allergies, medications, immunizations, procedures, and insurance); and HL7 Interface (ADT: encounters, documents, imaging documents, and labs only).

At the point of care dbMotion allows multiple views for the CCHIE: 1) a clinical view, 2) a newer view titled EHR agent, and 3) a Cerner MPage integration view. The next phase of the UPMC work in this regard will consist of integration with CommonWell. Figure 2 shows the architecture of the system. Figure 3 depicts the data feeds.

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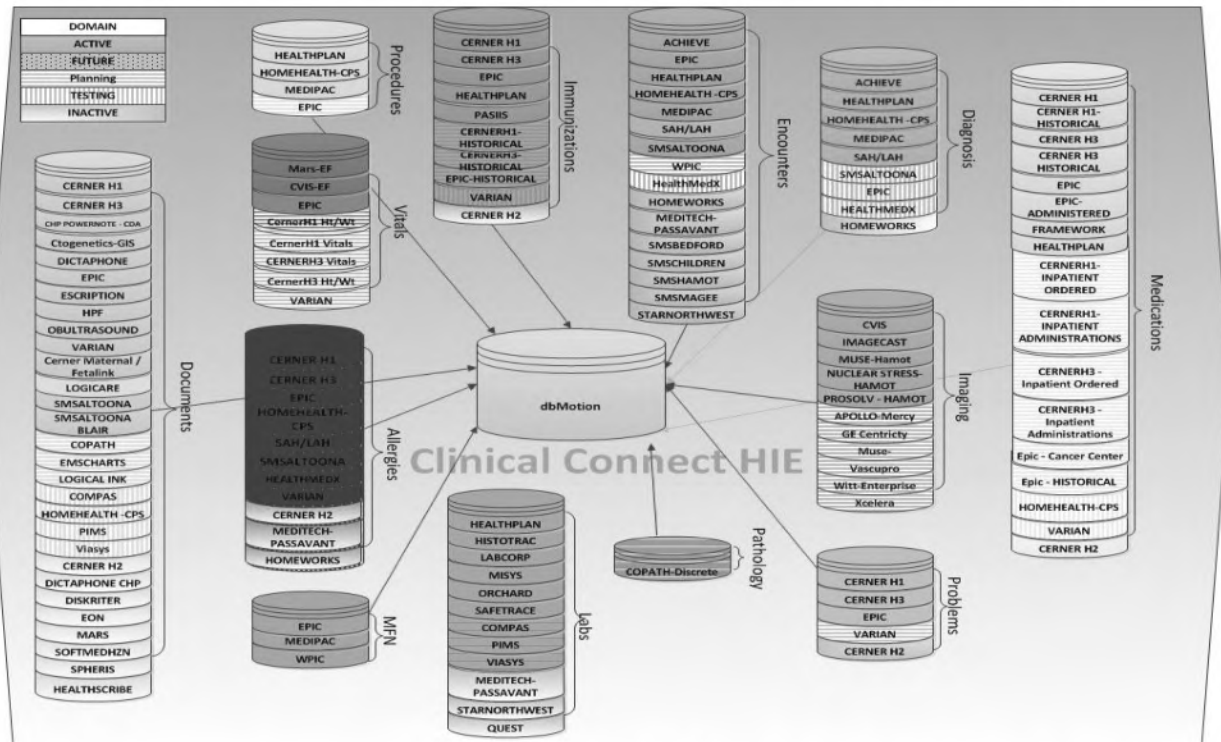
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Source: From UPMC Enterprises, used with permission, for VA use only

Figure 2. ClinicalConnect (Western Pennsylvania) Health Information Exchange



Source: From UPMC Enterprises, used with permission, for VA use only

Figure 3. Interoperability Data Integration

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When asked whether UPMC, or anyone else in the country, has a point-to-point Cerner-to-Epic interoperability solution that does not use an HIE, UPMC representatives responded “No.” Furthermore, UPMC representatives noted that about 10 percent of the total available individual patient data is currently transferred with UPMC’s interoperability system. This is complicated by an ongoing data explosion that doubles the amount of data in UPMC’s system about every 18 months.

Following the presentations and lunch, MITRE Chief Technology Officer Jay Schnitzer saw a live demonstration of CCHIE by Dr. Amy Urban and Dr. Rasu Shrestha. The live demonstration confirmed that all of the documents listed above are visible with equal fidelity and a very similar format from both the UPMC end and the community provider end and perspective. The system requires clinicians to know and understand where documents can be found, and sometimes requires multiple mouse clicks, but all documents can be accessed from the same EHR entry page with one single log in. Additionally, some data elements, including vital signs and labs, can be viewed in the form of graphs as a function of time, including data elements from multiple sources.

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IV. Closing Thoughts and Suggested Next Steps

The Panelists noted that VA cannot achieve true future EHR interoperability through the Cerner RFP alone, or through technology alone. The state of practice today shares only a small portion of available patient data. For VA to succeed in the future, multiple other components must be present and aligned: innovation, policy, standards, customer buy-in, and legislation, to name a few.

The following next steps are recommended for VA consideration:

1. Complete the RFP revisions, conduct appropriate negotiations with the Contractor expeditiously, and complete the Contract process as planned. Stand firm during negotiations to maximize ease of access to data and data models for building third-party APIs, applications, and services for future community innovations.
2. Work with other federal government agencies and departments with similar interoperability interests and concerns, including, but not limited to, the White House, DoD, Food and Drug Administration (FDA), Centers for Medicare and Medicaid Services (CMS), Office of the National Coordinator for Health Information Technology (ONC), and other parts of the Department of Health and Human Services, to align approaches to EHR interoperability and the development and support of standards government-wide.
3. Support future innovation approaches, including concepts such as an Interoperability Laboratory and outreach to the broader innovation ecosystem (major medical centers, academia, traditional and non-traditional healthcare providers, startups, individual entrepreneurs, others). It is critical to align the innovations planned in VA's Digital Veterans Platform to the VA EHR innovation efforts to ensure consistent, continuous improvements to clinician and Veteran health experiences.
4. Create an External Review Panel to provide continuous expert guidance, review, and feedback over the course of the implementation and help capture best practices from the expert community going forward. Conduct ongoing demonstrations of end-to-end Veteran use cases that require data sharing across organizational boundaries to validate improvements in Veteran healthcare and reduce burdens on healthcare providers. VA and Contractor will ensure that Federal Advisory Committee Act (FACA) guidelines are followed in leveraging any external review panels.

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Appendix A: Interoperability Review Forum Participants

Panelists	Title	Organization
Aneesh Chopra	President	CareJourney, former United States Chief Technology Officer
Charles E. (Chuck) Christian	Vice President, Technology and Engagement	Indiana Health Information Exchange
Ryan Howells	Principal	Leavitt Partners, LLC
Andrew Karson, MD	Director, Clinical Decision Support	Massachusetts General Hospital
Chris Klomp	Chief Executive Officer	Collective Medical Technologies, Inc.
Kenneth Mandl, MD	Professor, Biomedical Informatics Director, Computational Health Informatics	Harvard Medical School Boston Children's Hospital
Frank Opelka, MD	Medical Director, Quality and Health Policy	American College of Surgeons
Peter Pronovost, MD, PhD	Director, Armstrong Institute for Patient Safety and Quality Senior Vice President, Patient Safety and Quality	Johns Hopkins University
Christopher J. (Cris) Ross	Chief Information Officer	The Mayo Clinic
Carla Smith	Executive Vice President	The Healthcare Information and Management Systems Society
Paul R. Sutton, MD, PhD	Professor, Biomedical Informatics and Medical Education Associate Medical Director, Inpatient IT Systems, UW Medicine IT Services	University of Washington

VA Participants	Title	Organization
David J. Shulkin, M.D.	Secretary	Department of Veterans Affairs
Carolyn Clancy	Executive in Charge, Veterans Health Administration	Department of Veterans Affairs
Bill James	Acting Assistant Secretary, Office of Information & Technology	Department of Veterans Affairs
John Windom	Program Executive for EHRM and Special Advisor to the Under Secretary for Health	Department of Veterans Affairs
Dr. Ashwini Zenooz	Chief Medical Officer, EHRM; Deputy, Office of Deputy Under Secretary for Health Policy & Services, VHA	Department of Veterans Affairs
John Short	Chief Technology Officer, EHRM; Executive Director of Information Technology System Modernization	Department of Veterans Affairs
(b)(6)	Portfolio Lead: Project Transition and VA Integration, VA Center for Innovation	Department of Veterans Affairs
Camilo Sandoval	Senior White House Advisor, VHA	Department of Veterans Affairs
(b)(6)	Senior Advisor to the Secretary on Strategic Partnerships	Department of Veterans Affairs
(b)(6)	Contracts	Department of Veterans Affairs
Kyle Sheetz	White House Fellow	Department of Veterans Affairs

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Other Federal Government Participants	Title	Organization
(b)(6)	Senior Advisor, Office of Administration	The Centers for Medicare & Medicaid Services
Chris Liddell	Assistant to the President for Strategic Initiatives	The White House, Office of American Innovation
Bruce Moskowitz, M.D.	Internist	External Expert Participant
Shannon Sartan	Director, Digital Services	The Centers for Medicare & Medicaid Services
Dr. Lauren Thompson	Director	DoD/VA Interagency Program Office
Jon White	Deputy National Coordinator for Mental Health	The United States Department of Health and Human Services/The Office of the National Coordinator for Health Information Technology

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Appendix B: RFP Language for Purchasing Extensible Health IT

From <https://smarthealthit.org/2017/08/draft-model-rfp-language-for-purchasing-extensible-health-it/>, as of January 15, 2018.

SMART Platform (www.smarthealthit.org) is a project that lays the groundwork for a more flexible approach to sourcing health information technology tools. Like Apple and Android's app stores, SMART provides the means for developers to create and for health systems and providers to easily deploy third-party applications in tandem with their existing electronic health record, data warehouse, or health information exchange platforms.

To deploy SMART-enabled applications, health systems must ensure that their existing health information technology infrastructure supports the SMART on FHIR API. The SMART on FHIR starter set detailed below lists the minimum requirements for supporting the API and SMART-enabled applications. You may wish to augment this list of minimum requirements with suggestions from the Add-On Functionality listed depending on the types of applications your organization wishes to deploy.

This document is intended as a resource for providers and health systems as they draft Request for Proposals (RFPs) and negotiate with their HIT vendors for added functionality. It has multiple authors from across the SMART team and its advisors. Feedback is welcome.

The vendor must support the SMART on FHIR platform, a vendor agnostic API that allows third-party developers to build external apps and services that integrate with the vended product.

At a minimum, the vendor product should include the following components in order to support SMART on FHIR and SMART-enabled applications:

Data Access

- Provide automated, standards-based, read-only access through the FHIR API and FHIR data models (resources) to:
 - a well-defined set of real-time discrete data (including support for the API parameters and resources described in the Argonaut Implementation Guide)
 - free-text clinical notes

Data Manipulation

- Write structured data from third-party apps back to the organization's EHR and, where relevant, a data warehouse, using the FHIR REST API to communicate data including:
 - free-text clinical notes

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Standards-Based App Authorization

- Protect data and identity endpoints with standards-based authorization mechanisms (including the OAuth2 profiles described in the Argonaut Implementation Guide).
- Provide access to data endpoints with an approach that does not require user intervention subsequent to the initial setup such as the method described in the draft SMART Backend Services Profile (<http://docs.smarthealthit.org/authorization/backend-services/>) Provide capability to restrict this access to a specified set of patients (roster).
- Enable Health System to connect any third-party app of their choice that is conformant with the API without pre-registering the app with HIT Vendor.
- Enable patients to connect any third-party app of their choice that is conformant with the API without pre-registering the app with HIT Vendor through the OAuth Dynamic Registration protocol.
- Provide OAuth refresh tokens with a duration of one year to patient and provider facing apps that support the SMART Client Secret profile.

Identity Management

- Act as a standards-based Identity Provider using OpenID Connect. This ensures that users can authenticate to plug-in apps using single-sign-in via their existing EHR or patient portal credentials.
- Act as a standards-based relying party to a customer-selected Identity Provider using OpenID Connect. This ensures that users can sign into the EHR or patient portal using an external, hospital-supplied single-sign-on account.

Workflow

- Support standards-based embedding of external application UI (HTML5). This ensures that app developers can build Web apps, and these apps can run directly inside of the EHR.
- Support the launch of external applications in the clinician's workflow (this is not limited to the EHR and should include non-EHR integrated tools such as smart phones and tablets). For example, a clinician that has opted to use a third-party-developed native iPad app to visualize a patient's BMI over time can seamlessly use the application alongside the EHR via single-sign-on.
- Support notifications to and from running applications. For example, an embedded app can notify the EHR when the user is "done" with it.

Add-On Functionality

The provider organization may also want to consider the following additions to its RFP depending on the types of applications it wishes to develop and run in the future.

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Bulk Data Export

- Provide automated access to bulk export of data (complete representation of all data in the MU Common Clinical data set as well as free text notes) using a method like the SMART Flat FHIR draft proposal (<http://docs.smarthealthit.org/flat-fhir>)

Data Manipulation

- Write structured data from third-party apps back to the organization's EHR and, where relevant, a data warehouse, using the FHIR REST API to communicate data including:
 - medication prescriptions
 - lab and diagnostic imaging orders
- Support the dependent transactions necessary to ensure that actions completed by third-party applications using the API are valid in the EHR and data warehouse.

Context-Specific Service Hooks

- Support the ability to call an external standards-based service in specific workflow steps, through the CDS Hooks specification, including:
 - opening a patient record
 - new prescriptions
 - new lab orders
 - new imaging studies

Intellectual Property

The IP of any app integrated through the SMART on FHIR API belongs to the author and not the vendor.

Custom SMART on FHIR Extension to a Proprietary API

Should a vendor neglect to provide SMART on FHIR natively, the client has the right to provide a custom extension to the vendor's API. The ownership of the IP for the custom extension is negotiable between the client and the vendor, but the ownership of the app using the custom extension belongs to its author.

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Appendix C: Recommended RFP Interoperability Language Changes

The table below captures the recommended changes to the VA EHRM RFP.

Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
Commit to Full VA-DoD Interoperability				
1	Define specific capability performance requirement and mechanisms to hold Cerner accountable for reducing the administrative burden in clinician workflow with the objective of increasing efficiency.	<p>The IDIQ RFP PWS Section 5.1.11 speaks to overall EHRM value and performance management monitoring, measurement and reporting. Performance metrics will be defined and enforced at the task order level, since, for example, hosting metrics will be significantly different from deployment metrics.</p> <p>The RFP Section 8.6 refers to the use of Quality Assurance Surveillance Plans (QASP), which will include Functional and Non-Functional Key Performance Indicators (KPIs). The QASP will evolve as the EHRM solution and technology matures and is intended to establish Contractor accountability to what VA requires and values.</p>	None.	Concur.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
2	Define specifically the <i>span</i> of providers who can properly interface with VA under a proposed solution (the number of community providers who would be able to interface with VA under a solution as a function of cost to the provider).	RFP Section 5.2.1(j) states that “The EHRM solution shall support access via tablet or mobile device as adjudicated by joint governance. Platform specifics will be identified by VA at a TO level.” Section 5.10.4 states that “The Contractor is required to collaborate with VA affiliates, community partners, EHR providers, healthcare providers, and vendors to advance seamless care throughout the healthcare market.”	Suggest amending the language in RFP Section 5.2.1(j) to: “Support broad access via tablet or mobile devices and pursue technology to reduce the burden to the clinicians (e.g., providing third-party provide access to information using light-weight portals and support for future generation mobile devices). Platform specifics shall be adjudicated by joint governance and incorporated by VA at a TO level.”	Concur. Will negotiate with Cerner for inclusion of language.
3	Define the <i>degree</i> of interoperability the solution provides (ranging from basic file sharing to fully interchangeable, integrated and functionally identical patient records).	RFP Section 5.10.4 speaks to interoperability and provides sufficient breadth to introduce any additional information exchange requirements in the future, at the sole discretion of VA. Requirements Traceability Matrix (RTM) VA-FR-31 discusses specifics of data management, types of data to be exchanged, and methods of communication.	Suggest adding to RFP Section 5.10.5: "m) The Contractor shall conduct an annual Interoperability Self-Assessment against standards that shall be specified by VA, such as those promulgated by HIMSS or future standards to be identified by VA.”	Concur. Will negotiate with Cerner for inclusion.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
4	Pivot the RFP to be Veteran-centric and NOT system-centric. Be mindful that lessons learned are that many EHRs do not currently maximize efficient clinical workflow, so build that in (e.g., using CDS Hooks) and present information where needed with minimum "clicks to find" to reduce clinician burden.	<p>RFP Section 5.2.1 speaks to the EHR application supporting workflows.</p> <p>Section 5.5.1 Workflow development and normalization addresses configuration of workflows to meet VA requirements.</p> <p>Section 5.5.7 Organizational Change Management discusses optimizing workflows for each clinical role.</p> <p>Section 8.6 refers to the use of Quality Assurance Surveillance Plans (QASP) which provides active, continuous measurement against the extensive performance requirements captured in Appendices A-1 and A-2: EHRM Key Performance Indicators to ensure a Veteran-centric approach.</p> <p>RTM section VA-FR-33 requires adoption, development and maintenance of metrics to assess timeliness and quality of healthcare delivery to the patient population.</p> <p>The current RFP language can be clarified to specifically refer to the improvement on Veteran-centric delivery.</p>	<p>Suggest adding to RFP Section 5.5.1: "k) Provide an understanding of how all workflows will impact VA care coordination and management processes (e.g., incorporating community information) to improve Veteran-centric delivery."</p> <p>Also add to Section 5.5.1: "l) Configure workflows to incorporate all community data at the discrete level in support of clinical decision support, care management, disease management. The clinical workflow within the EHR should not require users to visit additional screens to view externally sourced data."</p> <p>See Item 29 for specific recommendations on CDS Hooks.</p>	Concur. Will negotiate with Cerner for inclusion.
5	Require Cerner support end-to-end use cases with major external stakeholders involved.	RFP Section 5.2.1 speaks to the EHR application supporting workflows. The Contractor can only be held responsible for elements of the end-to-end use case that reside within their system.	Suggest adding to RFP Section 5.2.1: "Testing conducted under the Test and Evaluation Program Plan may include specific workflows to inform a demonstration of end-to-end clinical use cases involving external stakeholders."	Concur. Will negotiate with Cerner for inclusion.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
6	Develop detailed data flow requirements between Cerner and all other vendors, be specific using clinical workflow or Veteran/patient-centric use cases.	Detailed data flow requirements should not be part of the RFP as it will result in the limitation of functionality to the specific data flows specified. They will be part of the Test and Evaluation Plan (TEP), where data flows can be added or modified. However, RFP Section 5.5.1 does not indicate that the external community data and end-to-end workflows will be considered in the configuration of standard EHRM workflows.	Suggest adding to RFP Section 5.5.1: “j) The Contractor shall enable configuration of the application that supports external community data without requiring the clinician to go to special screens to see and use external data.”	Concur. Will negotiate with Cerner for inclusion.
7	Specifically define the machine-data readability expectations to ensure interoperability between legacy, community care providers, and Cerner (e.g., notes fields).	RTM VA-FR-31 Requires the ability "to manage data structures that are standardized, accessible and editable." Specific requirements are to be incorporated into Task Orders, according to the structure of the contract.	See Item #34 for recommended changes to incorporate the SMART on FHIR and SMART-enabled applications. See Item # 49 for recommended changes to incorporate sharing of the EHRM data model and to improve the amount of computable data shared with community care providers. Suggest VA obtain a description from the Contractor that describes the current baseline of shareable data elements that are computable.	Concur. Will request information from Cerner.
8	Document the DoD-VA EHR Exchange Framework - it can serve as a starting point for the National model.	This is information that should be included as part of acquisition baseline developed by EHRM Program Management Office technical activities.	None.	Concur.
9	Require ability for bulk data export.	RFP Section 5.10.4(g) requires the Contractor to provide a software solution for multilateral standards-based ingestion, normalization, storage and exporting of Health Information Exchange acquired Veteran health information.	None.	Concur.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
10	Require "push" capability to send data back in to VA EHR / Cerner database.	RFP Section 5.10.4(g) requires the Contractor to provide a software solution for multilateral standards-based ingestion, normalization, storage and exporting of Health Information Exchange acquired Veteran health information.	None.	Concur.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
11	Require that VA drive and own the analytical algorithms and not rely on Cerner. Require that VA health organizations be involved in building the logic models with the community and the vendor.	<p>RFP Section 5.1.5 requires the Contractor provide requirements development support but does not include who is responsible for coordinating the community input on the logic models.</p> <p>RFP Section 5.1.7 requires the Contractor support data management but does not state that VA shall provide the analytical algorithms.</p> <p>RFP Section 5.5.1(e) requires the Contractor support robust semantic modeling for the information associated with the workflows. Further detail to achieve this recommendation is also detailed in the Functional Requirement documentation, specifically VA-FR-31. VA should lead and own the analytical algorithms as it is in the best interest of the health community. By owning the algorithms, VA will take the lead on coordinating the effort, but the Contractor will actually develop the algorithms.</p>	<p>Suggest adding to RFP Section 5.1.5: "While the Contractor shall provide such support, VA reserves the right to take the lead on coordinating input from the user and provider communities. VA may, at its discretion, incorporate analytics from other entities, and include them in its future Digital Veterans Platform, with which the EHR must be fully compatible and interoperable."</p> <p>Suggest adding to RFP Section 5.1.7(b): "based on community and VA coordinated analytic algorithms."</p> <p>Suggest adding to RFP Section 5.5.1(e): "VA and its agents shall have unlimited rights to all resulting models and algorithms."</p> <p>Suggest adding to RFP Section 5.5.1(f): "which modeling shall be based on analytical algorithms and data models (1) developed by the Contractor, (2) co-developed by the Contractor in coordination with VA health organizations and the community, (3) developed by VA health organizations, or (4) provided by third-party developers. VA and its agents shall have unlimited rights to all algorithms and logic models incorporated in the EHRM solution, and intellectual property rights will be handled in accordance with § H.2 of the Contract "VA EHRM IP License Agreement" on a Task Order basis."</p>	Concur. Will negotiate with Cerner for inclusion.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
12	Enhance the data quality management requirements to ensure Cerner is responsible for maintaining and resolving data quality issues.	RFP Section 5.1.8 Requires the Contractor to be responsible for data migration, but RFP Section 5.1.7 does not include a requirement for the Contractor to manage data quality internal to its systems.	Suggest adding to RFP Section 5.1.7: "j) Maintain backward compatibility of the EHRM solution in such way as to maintain the quality of the data, to ensure that, once captured, the Government has access to and computational use of the data regardless of the evolution of the EHRM or age of the data k) Identify data quality issues found in data sourced from systems beyond its operational remit, applying the same validations and quality standards to incoming external data that it performs for data originated natively within the EHRM solution. Where the principle of seamless care requires that EHRM accept data that does not meet its internal data quality standards, Contractor shall implement the solution so that any incoming data that does not meet EHRM data quality standards be clearly flagged as such and provide both process and user interface to allow incorrect or missing data to be remedied if possible."	Concur.
13	Define the common identity and access management approach Cerner and others will adopt (e.g., using the Vets.gov identity as the coordinating identity).	RFP Section 5.5.2 describes the required approach to identity and access management across population types and roles. DoD/VA are aligning their efforts to address this going forward.	None.	Concur.
14	Adopt the DoD approach to data and system security.	RFP Section 5.4: Information System Authorization, Testing and Continuous Monitoring describes the security approach for the shared DoD/VA authorization boundary. Joint DoD/VA Strategy will be executed.	None.	Concur.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
15	Share the VA's security approach to medical and endpoint security with DoD for opportunity to leverage and harmonize.	RFP Section 5.4: Information System Authorization, Testing and Continuous Monitoring describes the security approach for the shared DoD/VA authorization boundary. Joint DoD/VA Strategy will be executed.	None.	Concur.
16	Require Cerner to make the VA data model, standards, and other similar interoperability changes available in all other non-VA Cerner instances of its EHR platform.	RFP Section 5.10.4.1 requires opportunity for agreed upon Contractor proprietary information/data model extension points (e.g., ingestion and record APIs) to be provided to both international and national standards designating organizations, however, this does not include providing the capability to other Cerner users, which would extend Cerner interoperability across the community.	Suggest adding to RFP Section 5.10.4.1: "The Contractor shall provide VA access and usage rights into any underlying proprietary terminology/code systems for the purpose of enhancing national standards to address any gaps identified in the EHRM solution. The Contractor shall also make the interoperability capabilities and product enhancements developed under this contract available to non-VA Cerner clients."	Concur. Will negotiate with Cerner for inclusion of language.
17	Clearly define "enabling security framework." Does this mean a specific security framework such as NIST, HITRUST, etc.	VA Requirements Traceability Matrix Non-Functional requirements provides the security requirements to include Access Management, Identity Management, and Information Assurance/Security. RFP Sections 5.4 Information System Authorization, Testing and Continuous Monitoring and 5.5.2 Identity and Access Management provide additional clarification on the security requirements.	None.	Concur.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
Leverage Current and Future Standards				
18	Specifically describe what and how you can read, write, and reconcile re: health data.	Requirement VA-FR-31 describes data management requirements: standardized data and coding terminology systems; use of government endorsed messaging and content standards for interoperability; management of data elements from various entry points etc. The current requirement does not provide understanding of which data elements are being exchanged and the degree of interoperability/ computability supported.	Suggest adding to RFP 5.10.4(m): “The annual assessment will report on the state of each data element (e.g., which are supported in what capacities and in which formats). This will help assure standards implementation consistency and assure standards compliance with evolving national standards.”	Concur. Will negotiate with Cerner for inclusion of language.
19	Define who has what rights from a data sharing perspective, impacting APIs (e.g., VA owns the data + all data products vs. Community care provider owns their treatment info on patient vs. patient owns all their own data.)	Requirement VA-FR-31 and RFP Section 5.1.7 describe data management requirements (including syndication). Section 5.5.4 requires “all, significant data stored in the software is accessible through API’s” however clarification is needed to ensure access to all data originating from alternate VA-designated authoritative sources.	Suggest adding to RFP 5.5.4: “l) Provide standards-based API access (e.g., FHIR) to all patient data from the VA-designated authoritative data sources for the patient’s record within the Contractor’s product suite.”	Concur. Will negotiate with Cerner for inclusion of language.
20	Identify the authoritative source for the various elements of a Veteran's health record.	RFP Section 5.1.4 requires the Contractor to provide support in the development and/or evaluation of new Standards, Policy Directives, Operating Procedures, Processes, etc. Broader recommendation beyond the scope of the EHRM RFP is for VA to define the authoritative source policy for all VA data. This is not an EHRM specific policy and should be issued by VACO or VHA.	Suggest adding to RFP 5.5.4: “j) assist VA in defining and establishing the authoritative data sources associated with each data element in the EHR (e.g., where it is available and who has access to the information).”	Concur with the language for 5.5.4.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
21	Increase the VA presence and leadership role in standards-making bodies (e.g., Argonaut).	Increasing VA presence and leadership roles in standards-making bodies is an entirely separate recommendation that is not related to the IDIQ.	None.	Concur.
22	Include requirement for Cerner to support VA as an advocate to VA position on all relevant standards-making bodies.	RFP Section 5.1.4 requires Contractor support in the development and/or evaluation of new standards, policy directives, operating procedures, processes and/or assessments on their impacts when implemented.	None.	Concur.
23	Require Cerner to implement all standards as defined by VA.	Requirements Traceability Matrix VA-NJ-177 defines interoperability data standards and specifically cites support of the health data standards identified in the VA-DoD Health Information Technical Standards Profile and by the VA-DoD Interagency Clinical Informatics board.	None.	Concur.
24	Clarify the intended reference in the phrase “national Common Trust Framework.” Does this refer to the Trusted Exchange Framework and Common Agreement (TEFCA) specified in the 21st Century Cures Act?	RFP Section 5.10.4(h) refers imprecisely to the "national Common Trust Framework."	Suggest replacing the phrase in RFP Section 5.10.4 h) "national Common Trust Framework" with “Trusted Exchange Framework and Common Agreement (TEFCA).”	Concur. Will negotiate with Cerner for inclusion of language.
25	Clarify if the “provider collaboration via secure e-mail using Direct standards” is limited to the Direct protocols and just the Cerner platform.	RFP Section 5.10.4(i) requires the Contractor, by IOC, to "provide a capability for provider collaboration via secure e-mail using Direct standards within a Cerner Millennium EHR workflow context."	Suggest adding to RFP Section 5.10.4(i): "the ONC Direct protocol or future VA-designated standard."	Concur. Will negotiate with Cerner for inclusion of language.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
Commit to Open, Standards-Based APIs				
26	Be specific about the VA publishing / access service requirements.	RFP Section 5.5.4 includes requirements that all significant data stored in the software is accessible through API's with no requirement for creation of custom applications to specifically access VA data. RTM VA-NF-7 requires the system to support the ability to access data elements using open standard-based interfaces including legacy data. Clarification is needed to ensure the intention to pursue standards-based APIs.	Suggest adding to RFP Section 5.5.4 – “standards-based” in front of APIs.	Concur. Will negotiate with Cerner for inclusion of language.
27	Define in the contract the VA publishing / access services specifically for (1) Veteran access services (e.g., vets.gov), (2) VA clinician access services, (3) Partner access services, and (4) HIE access service.	RFP Section 5.5.2 describes identity and access management requirements including user population types and the association of specific application permissions tied to roles/positions. RTM VA-NF-6 through 48 describe specific access services required.	None.	Concur.
28	Ensure external API developers can host their apps on an app platform that is NOT controlled by Cerner (and therefore does not require Cerner licensing and approval).	RFP Section 5.1.8(d) requires the contractor analyze and propose a way forward for the capability for external apps to use HealthIntent as a data source. Section 5.5.4 requires the contractor to support data exchanges via the API gateway. Section 5.10.4.2 requires the contractor to work in good faith to integrate the EHRM with the Digital Veterans Platform API gateway.	Suggest replacing the second sentence in 5.10.4.2: “The Contractor shall integrate the EHRM to interoperate with DVP or future state VA platform.”	Concur. Will negotiate with Cerner for inclusion of language.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
29	Include requirement for Cerner to provide CDS Hooks to support open clinician workflow.	RFP Section 5.8 requires the contractor provision robust data analysis toolsets that allow, among other things, analytics and Clinical Decision Support (CDS). VA-NF-T26 requires "integration with Cerner via standards-based interfaces (including but not necessarily limited to support for FHIR APIs and/or OMG CDS API/ HL7 CDS APIs (e.g., CDS Hooks)".	None.	Concur.
30	Specify the required utility services to support intermediary or peer-to-peer services; e.g., support Veteran-directed or Veteran-mediated request, exchange, and ingestion from non-VA providers (via APIs where available).	RFP Section 5.10.4(c) requires "the Contractor shall provide a software solution enabling VA to release and consume, via on-demand access, a Veteran's complete longitudinal health record to and from DoD and connected community partners. The longitudinal record solution shall support Provider-to-Provider record sharing, as well as Provider-Veteran-Provider sharing (Veteran mediated record sharing), including appropriate consent management."	Suggest adding “, regardless of which EHR they use” after “connected community partners...to and from DoD and connected community partners, regardless of which EHR they use.”	Concur. Will negotiate with Cerner for inclusion of language.
31	Require that VA has full authority to connect any VA-approved, secure third-party app with the Cerner system, without Cerner approval.	RFP Section 5.7.1 requires the contractor provide on-site integration for devices connecting to the Contractor system. VA is fully responsible for the security of its systems and protection of its data.	Suggest adding to 5.7.1b: “including via the Digital Veterans Platform...support for VA-approved third-party apps connecting to the Contractor system, including via the Digital Veterans Platform.” Suggest adding to 5.7.1 – “g) Permit and approve connecting all VA approved secure apps without additional fees or licensing.”	Concur. Will negotiate with Cerner for inclusion of language.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
32	Ensure the API developers retain their IP rights when their API is used to connect to the Cerner interface.	<p>RFP Section 5.5.4 sets forth requirements with respect to APIs, including paragraph (e), which provides for the provision and maintenance of a Developer Portal.</p> <p>Section 5.10 generally promotes innovation while 5.10.4.2 requires the Contractor to support the Digital Veterans Platform (DVP) API gateway which is intended to provide a neutral application platform for third party APIs.</p> <p>Additional language is required to promote innovation in the creation of third party applications by removing derivative or cascading intellectual property restrictions/ constraints.</p>	Suggest adding to RFP 5.5.4(e): " and provide policies and procedures for the use of the Developer Portal(s) and APIs that promote innovative third-party API development" and "Third party API developers shall retain their IP rights when their API is used to connect to the Cerner interface, and there will be no derivative IP ownership when third parties consume Cerner terminology through open APIs."	Concur. Will negotiate with Cerner for inclusion of language.
33	Require the ability for 3rd party apps to remain connected to the Cerner system and receive automatic notification on updates (e.g., vaccination). Allow the app to connect without being cut off in accordance with VA security requirements.	RFP Section 5.7.1 requires the contractor provide on-site integration for devices connecting to the Contractor system.	<p>Suggest adding to RFP Section 5.7.1(b): "support for third-party apps connecting to the Contractor system."</p> <p>Suggest adding the following new paragraphs (ii) and (iii) to RFP Section 5.7.1(b): "ii. Provide ability for third-party apps to remain connected to the Contractor system in accordance with VA security requirements and receive automatic notification on updates; and iii. Allow the app to remain connected without interruption lasting longer than a certain period of time to be approved by the Government."</p>	Concur. Will negotiate with Cerner for inclusion of language.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
34	Incorporate the model RFP language necessary for Cerner to support the API and SMART on FHIR platform and SMART-enabled applications.	RFP Section 5.10.4 and the Requirements Traceability Matrix refer to SMART and FHIR based applications but do not incorporate all elements of the suggested functionality such as the support for standards-based embedding of external application UI (HTML5).	Suggest adding to RFP Section 5.10.4: "In addition, the software and services shall support the VA designated standards, such as SMART on FHIR and SMART-enabled applications, or published standard at the time."	Concur. Will negotiate with Cerner for inclusion of language.
Use Community Care Contracts to Foster Interoperability				
35	Before the contract is signed, get Care Act providers and Cerner competitors to commit to support the contract as early adopters.	Pre-contractual activity and pertains to future strategic discussions to drive interoperability in the marketplace.	None.	Concur.
36	Require publication of the EHRM /Cerner clinical data model in the National Library of Medicine (following the Kaiser example).	RFP Section 5.10.4.1 states: In support of the interoperability objectives under this Section, agreed upon Contractor proprietary information/data model extension points (e.g., ingestion and record APIs) may be provided to both international and national standards designating organizations as described and set forth in an applicable Task Order.	None.	Concur.
37	Require the Veteran to be able to invoke their right of access to data as the intermediary to support data exchange (e.g., pull through their API on phone and push to their community care provider).	RFP Section 5.7.1 requires support to Veterans ensuring they can effectively navigate the HealtheLife patient portal and Wellness programs to effectively manage their health.	Suggest adding to RFP Section 5.7.1(c): "using mobile apps, thin-client and thick-client solutions" and "Veterans shall be able to enable sharing of their health data with their community care providers in accordance with all VA-designated national standards."	Concur. Will negotiate with Cerner for inclusion of language.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
38	Require Cerner and the Community Care provider applications provide bi-directional health information in exchange for using the VA-provided API gateway.	<p>RFP Sections 5.10.1, -2, and -3 require support for innovation and other development activities.</p> <p>Section 5.10.4(c) requires "a software solution enabling VA to release and consume, via on-demand access, a Veteran's complete longitudinal health record to and from DoD and connected community partners."</p> <p>VA-NF-61, -63, and -65 requires bi-directional interface in support of Pharmacy. This requirement can be fulfilled by a flat file and does not require the data to be computable.</p>	Suggest adding to RFP Section 5.10.4(c): "The bi-directional health information exchange shall maximize use of discrete data that supports context-driven clinical decisions and informatics."	Concur. Will negotiate with Cerner for inclusion of language.
39	Shift VA policy enabled by the Choice Care Act from "Opt-In" to "Opt-Out" such that the starting assumption is that data can be shared unless the Veteran "opts out."	Review and revise VA policy.	None.	Concur.
Other				
40	Analyze and understand the operational cost to VA to implement and operate under the proposed solution.	Analysis of cost information is not part of a IDIQ contract. It will be done as part of the standard PMO processes.	None.	Concur.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
41	Incorporate requirement that subsequent updates and improvements to the Cerner solution is part of the baseline contract (and cost).	RFP Section 5.2.3 Software Maintenance requires: The Contractor shall provide its commercial support and maintenance services described in its End User License Agreement. Leveraging Contractor's best practices and agreed upon upgrade schedule between DoD and VA, software maintenance includes all releases of the software such as major releases, minor releases, maintenance releases.	None.	Concur.
42	Address the differences between federal and state privacy laws - policy that Federal laws take precedence over state laws.	Federal and state privacy laws can only be addressed through legislation.	None.	Concur.
43	Ensure VA has no gag order: Require Cerner to allow open, public sharing/reporting (e.g., screen shots) on issues or errors with the EHR solution (e.g., if there is a known anomaly, that anomaly and its work-around is shared with the Cerner user community).	RFP Section 5.3.3 - System Quality and Performance Measures and Monitoring is appropriate to capture this requirement. There is no explicit contractual language requiring the contractor to disclose issues or efforts, nor is there language explicitly preserving the right of VA to share such information.	Suggest adding to RFP Section 5.3.3: "Contractor is responsible for reporting all issues or errors associated with the EHR solution and acknowledges and agrees that errors shall not be considered confidential, proprietary or trade secrets, and accordingly, shall be releasable to VA or its agents. VA retains the right to share any issue, error or resolution approach."	Concur. Will negotiate with Cerner for inclusion of language.
44	Define the way ahead for 3rd party apps (sunset, rebuild and transition) during the Cerner transition.	This should be evaluated in congruence with the legacy transition plans (pivot plans) of existing systems to Cerner.	None.	Concur.
45	Emphasize the need and resource commitment to achieve clinician consensus, change management, and culture.	RFP Section 5.5.7 Organizational Change Management includes a detailed approach to clinician consensus, change management and culture change.	None.	Concur.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
46	Develop a roadmap for all EHR vendors that specifies how Veterans and providers access and share their data and get that data from A to B. This is not limited to the Cerner solution, but includes legacy and community care systems.	These tasks are not part of the IDIQ and will be addressed via Data Migration Plan and Data Management Strategy across VA.	None.	Concur.
47	Require ability for VA to innovate using the Cerner solution, including support to a Veteran Interoperability Partnership Lab.	<p>RFP Section 5.10: Innovation and Enhancements includes an innovation process, categories and development activities to enable VA innovation activities using the Cerner solution. The language is sufficiently broad to support issuance of a Task Order requiring the Contractor to support interoperability activities including a Veteran Interoperability Partnership Lab.</p> <p>MITRE recommends this lab be independently managed and used to support 3rd party innovators, demonstrate interoperability solutions, validate the effectiveness of interoperability solutions in an end-to-end clinical use case context, and serve as a reference architecture to allow 3rd party stakeholders to exercise innovations.</p>	None.	Concur.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
48	Understand how Cerner will manage data quality, including provenance, error bounds, data looping, security, etc.	<p>The RFP Section 8.6 refers to the use of Quality Assurance Surveillance Plans (QASP), which is intended to establish Contractor accountability to what VA requires and values.</p> <p>VA-NF-T46 requires “The system shall support provenance (chain of custody or ownership) and pedigree (processing history how the data was produced or incorporated) and enable identification, collection, and production of data according to source, custody and ownership and display of data in business, logical, legal or physical models.”</p>	None.	Concur.

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Item No.	Independent External Review Recommendations	EHRM RFP Section(s) Affected and Additional Comments	MITRE Recommended Change(s) to the EHRM RFP	VA Adjudication
49	<p>Understand how Cerner will provide VA with access to the data model, share data for analytics freely to 3rd parties, increase the amount of computable data exchanged with 3rd parties.</p> <p>Panelists acknowledged this recommendation is a stretch goal.</p>	<p>RFP Section 5.8 address the support to business intelligence and data analytics. Section 5.10.4.1 supports the sharing of Contractor proprietary information/data model extension points (e.g., ingestion and record APIs) with both international and national standards designating organizations. However, current language does not require access to the EHRM data model, supporting understanding of and therefore increase the exchange of computable data with community care providers.</p>	<p>Suggest adding to RFP Section 5.8: “h) Provide VA EHRM data model, underpinning terminology model, tables, definitions, and examples of fully populated Veteran data files. Provide documentation or software that is used for quality checks and that illustrate what data elements are computable.”</p> <p>Suggest adding to Section 5.10.4.1: “n) The Contractor shall support Knowledge Interoperability by supporting the extension of clinical content assets such as terminologies, clinical decision support rules, order sets, etc. This includes the ability to curate, extend, and share that knowledge with clinical partners. This fosters rapid adoption from industry best practices, e.g., clinical professional societies.”</p> <p>Suggest VA obtain a price from the Contractor to provide a report explain the steps involved in accessing the data model, including producing an example data file, and demonstrating how much of the data is computable; provide cost estimates for outside parties to access the data via this mechanism.</p>	Concur.

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50	Understand how the Cerner EHRM solution will improve Veteran and clinician experiences.	<p>RFP Section 5.2.1 describes the EHR application, however does not specifically focus priorities on the Veteran and clinician experience as captured in end-to-end use cases.</p> <p>Section 8.6 refers to the Quality Assurance Surveillance Plans, which include Functional and Non-Functional Key Performance Indicators (KPIs). These KPIs will reflect VA priorities which include improvement of both Veteran and clinician experiences.</p>	Suggest adding to RFP Section 5.2.1.1: “k) Provide for the ability to measure the EHRM performance that contributes to any end-to-end use case, thereby capturing its impact on improving a Veteran and clinician experience.”	Concur.

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Appendix D: Acronyms

API	Application Programming Interface
CCHIE	ClinicalConnect Health Information Exchange
CDS	Clinical Decision Service
DoD	Department of Defense
EHR	Electronic Health Record
EHRM	Electronic Health Record Modernization
FHIR	Fast Healthcare Interoperability Resources
HIE	Health Information Exchange
HL7	Health Level Seven International
IP	Intellectual Property
IT	Information Technology
PWS	Performance Work Statement
RFP	Request for Proposal
UPMC	University of Pittsburgh Medical Center
VA	Department of Veterans Affairs
VACO	VA Central Office
VHA	Veterans Health Administration

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From: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=vacosandoc>
To: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=vacosandoc>
Cc:
Bcc: (b)(6)@gmail.com (b)(6)@gmail.com>
Subject: FW: Please Review Tonight
Date: Mon Aug 13 2018 11:46:17 EDT
Attachments: [EXTERNAL] NDA.pdf (1).msg
NDA.pdf
[EXTERNAL] RE: VA EHR NDA (2).msg
Perlmutter.EHR NDA v2 mbs.pdf
[EXTERNAL] Re: VA EHR NDA (3).msg
EHR NDA v2 mbs.pdf
EHR NDA v2 RL.pdf
EHR NDA v2.pdf

Camilo Sandoval

202-461-6910

From: Sandoval, Camilo J.
Sent: Friday, May 04, 2018 2:16 AM
To: Spero, Casin D. <Casin.Spero@va.gov>; Hayes-Byrd, Jacquelyn <Jacquelyn.Hayes-Byrd@va.gov>; O'Rourke, Peter M. <Peter.ORourke@va.gov>
Subject: RE: Please Review Tonight

And in case anyone ask, here are the signed NDA's of Ike, Bruce, and Marc.

From: Sandoval, Camilo J.
Sent: Friday, May 04, 2018 2:12 AM
To: Spero, Casin D.; Hayes-Byrd, Jacquelyn; O'Rourke, Peter M.
Subject: RE: Please Review Tonight

Pete—

This request from members of congress is based on inaccurate reporting by Arthur Allen from Politico, which was fueled by David Shulkin and Scott Blackburn. In fact, the real outside interference and conflict of interest came from Peter Levin, who was attempting to shape the direction of ongoing contract negotiations between the VA and Cerner. According to John Windom and Ash Zenooz, on several occasions Secretary Shulkin suggested to the EHRM team that Peter Levin be hired as a direct contractor. When those efforts failed, Peter Levin then acquired VA contracts through MITRE with Secretary Shulkin's influence. Please note that Peter Levin, Scott Gould, Stephen Ondra and Michele Flournoy (married to Scott Gould) all work for or are associated with AMIDA and MITRE. Ironically, they were all senior VA or DOD employees under the Obama administration with access to insider information.

A key question Arthur Allen and interested members of congress should investigate and write about is, why did Shulkin and Blackburn continue to communicate with Peter Levin, and put undue pressure on John Windom to hire Peter Levin's firm—AMIDA—as a contractor. Also, why was Shulkin in such a rush to sign the Cerner contract last year (Oct/Nov) when there was over 51 major findings and recommendations added to the contract over the past several months? And for the record, it was a team of top medical CIOs and practitioners—put together by Ike Perlmutter and Bruce Moskowitz—who identified the flaws in the contract and made the recommendations, not MITRE. MITRE had advised against a strategic pause, and then took credit for the work done after.

Please read attachments.

From: Spero, Casin D.
Sent: Thursday, May 03, 2018 7:31 PM
To: Sandoval, Camilo J.; Hayes-Byrd, Jacquelyn; O'Rourke, Peter M.
Subject: RE: Please Review Tonight

Good info Cam, we may want to remind the interested parties of that.

From: Sandoval, Camilo J.
Sent: Thursday, May 03, 2018 4:13:22 PM
To: Hayes-Byrd, Jacquelyn; O'Rourke, Peter M.; Spero, Casin D.
Subject: RE: Please Review Tonight

Thank you Jacquie. If we go back to Shulkin's EHRM hearing testimony, he mentions under oath that he and Scott Blackburn requested outside, non-governmental help from the top 5 Medical CIO's. These experts are who alerted him to the many interoperability issues previously unknown to Cerner or VA staff.

From: Hayes-Byrd, Jacquelyn

Sent: Thursday, May 03, 2018 5:42 PM
To: O'Rourke, Peter M.; Sandoval, Camilo J.; Spero, Casin D.
Subject: Please Review Tonight

Please see these two documents tonight as the Dep Sec provided this to Colonel Gainey late this afternoon

And Andy will be giving it to the Secretary first in the a.m. don't want you to be blindsided and I would like for you to be prepared to discuss.

Jacquie

From: Washington, Conrad
Sent: Thursday, May 03, 2018 5:32 PM
To: Hayes-Byrd, Jacquelyn
Subject: REQUESTED SCAN

Conrad Washington

Special Assistant

Office of the Secretary

810 Vermont Ave, NW

Washington, DC 20420

202-461-7865 (O)

Conrad.washington@va.gov

VA Core Values: Integrity, Commitment, Advocacy, Respect, and Excellence—I CARE

Document ID: 0.7.1705.630946-000001

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: [EXTERNAL] NDA.pdf (1).msg <extracted>

Last Modified: Mon Aug 13 10:46:17 CDT 2018

[EXTERNAL] NDA.pdf (1).msg <extracted from Printed Item: 37 / Attachment: 1>
Cc: DJS[vacodjs1@va.gov], H(b)(6)@frenchangel59.com, (b)(6)@gmail.com, (b)(6)@gmail.com
To: Blackburn, Scott R. (DISABLED ACCT)[Scott.Blackburn@va.gov]; (b)(6) Windom, John
H.[John.Windom@va.gov]
From: Bruce Moskowitz
Sent: Tue 3/13/2018 6:59:21 PM
Subject: [EXTERNAL] NDA.pdf
[NDA.pdf](#)

Sent from my iPad
Bruce Moskowitz M.D.

Document ID: 0.7.1705.630946-000002

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdl)
/cn=recipients/cn=vacosandoc>

Filename: NDA.pdf <extracted>

Last Modified: Mon Aug 13 10:46:17 CDT 2018

NON-DISCLOSURE AGREEMENT (Dated March 13, 2018)

1. I acknowledge that I have been selected to participate in the planning for an electronic health record acquisition. In the course of participating in this acquisition, I may be or have been given access to or entrusted with Source Selection Information (as defined in Federal Acquisition Regulation (FAR) 2.101 and 3.104), and/or other sensitive Government data marked as "proprietary" (e.g., restrictive legend per FAR 52.215-1) that I cannot release to others nor can I use for the financial benefit of others or myself.

Source Selection Information is defined in FAR 2.101 & 3.104 and other sensitive Government data includes data marked as "proprietary" (e.g., restrictive legend per FAR 52.215-1). Data includes all data, information and software, regardless of the medium (e.g. electronic or paper) and/or format in which the data exists, and includes data which is derived from, based on, incorporates, includes or refers to such Source Selection and/or proprietary data (collectively referred to herein as "the data"). Any data which is derived from, based on, incorporates, includes or refers to data shall be treated as Source Selection, or proprietary data and shall be subject to the terms of this Non-Disclosure Agreement.

2. I understand that 41 U.S.C. § 423, commonly referred to as the Procurement Integrity Act, and now codified at U.S.C.A. § § 2101-2107, and provisions FAR 3.104 govern the release of proprietary and source selection information. As it relates to the information that has been made available to me pursuant to this Non-Disclosure Agreement, I certify that I will not disclose any contractor bid, solicitation, proprietary, or Source Selection Information directly or indirectly to any person other than the President of the United States or a member of his administration to whom the President authorizes, another person subject to an equally restrictive Non-Disclosure Agreement related to the subject matter of this Agreement, the Secretary of the Department of Veterans Affairs or a person authorized by the head of agency or the contracting officer to receive such information. I understand that unauthorized disclosure of such information may subject me to substantial administrative, civil and criminal penalties, including fines, imprisonment, and loss of employment under the Procurement Integrity Act or other applicable laws and regulations.

3. I certify that I will not discuss evaluation of source selection matters with any unauthorized individuals (including Government personnel other than those set out in Paragraph 2 above), even after contract award, without specific prior approval from proper authority.

4. These provisions are consistent with, and do not supersede, conflict with, or otherwise alter the employee obligations, rights, or liabilities created by existing statute or Executive order relating to (1) classified information, (2) communications to Congress, (3) the reporting to an Inspector General of a violation of any law, rule, or regulation, or mismanagement, a gross waste of funds, an abuse of authority, or a substantial and specific danger to public health or safety, or (4) any other whistleblower protection. The definitions, requirements, obligations, rights, sanctions, and liabilities created by controlling Executive orders and statutory provisions are incorporated into this agreement and are controlling. These statutes and Executive orders include the following:

;

;

;

;

;

NON-DISCLOSURE AGREEMENT

Planning for an electronic health record acquisition

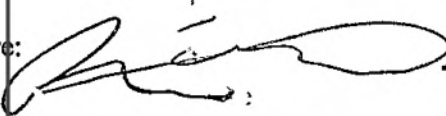
Dated Tuesday March 13, 2018

Page | 2

- ☐ Executive Order No. 12958;
- ☐ The Privacy Act (5 U.S.C. § 552a);
- ☐ The Trade Secrets Act (18 U.S.C. § 1905);
- ☐ Section 7211 of title 5, United States Code (governing disclosures to Congress);
- ☐ Section 1034 of title 10, United States Code, as amended by the Military Whistleblower Protection Act (governing disclosure to Congress by members of the military);
- ☐ Section 2302(b)(8) of title 5, United States Code, as amended by the Whistleblower Protection Action (governing disclosures of illegality, waste, fraud, abuse or public health or safety threats);
- ☐ The Intelligence Identities Protection Act of 1982 (50 U.S.C. § 421 *et seq.*) (governing disclosures that could expose confidential Government agents); and
- ☐ The statutes which protect against disclosure that may compromise the national security, including sections 641, 793, 794, 798, and 952 of title 18, United States Code, and section 4(b) of the Subversive Activities Act of 1950 (50 U.S.C. § 783(b)).

Additionally, pursuant to 38 Code of Federal Regulations 1.201, all VA employees with knowledge or information about actual or possible violations of criminal law related to VA programs, operations, facilities, contracts, or information technology systems shall immediately report such knowledge or information to their supervisor, any management official, or directly to the Office of Inspector General.

Signature:

 **BRUCE MOSKOWITZ, M.D.**
1411 N. FLAGER DR., #7100
WEST PALM BEACH, FL 33401

Name Printed: Bruce Moskowitz, MD

Organizational Conflict(s) of Interest (OCIs):

Document ID: 0.7.1705.630946-000003

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: [EXTERNAL] RE: VA EHR NDA (2).msg <extracted>

Last Modified: Mon Aug 13 10:46:17 CDT 2018

[EXTERNAL] RE: VA EHR NDA (2).msd <extracted> for Printed Item: 37 (Attachment 3 of 8)
To: Marc Sherman[mbsherman@gmail.com]; Blackburn, Scott R. (DISABLED ACCT)[Scott.Blackburn@va.gov]
Cc: (b)(6) @gmail.com; (b)(6) @gmail.com; Bruce Moskowitz[(b)(6)@mac.com]; (b)(6)
(b)(6); Windom, John H.[John.Windom@va.gov]; DJS[vacodjs1@va.gov]
From: IP
Sent: Tue 3/13/2018 6:07:06 PM
Subject: [EXTERNAL] RE: VA EHR NDA
Perlmutter.EHR NDA v2 mbs.pdf

Attached is my signed NDA. Thank you.

From: Marc Sherman [(b)(6)@gmail.com]
Sent: Tuesday, March 13, 2018 1:40 PM
To: Blackburn, Scott R.
Cc: IP; (b)(6)@gmail.com; Bruce Moskowitz; (b)(6) Windom, John H.; DJS
Subject: Re: VA EHR NDA

Scott, Matt and John

Thank you for the NDA draft that you sent along and the organized approach. I have attached the following to close the loop:

1. a marked up version of the NDA with a few necessary adjustments in red-line so you can see the changes that were made,
2. a blank copy of the amended NDA for Bruce and Ike to sign, and
3. a signed version by me of the amended NDA.

Thanks and happy to help as requested.

Marc

On Tue, Mar 13, 2018 at 10:31 AM, Blackburn, Scott R. <Scott.Blackburn@va.gov> wrote:
Ike, Bruce, Marc:

Thank each of you for agreeing to lend an extra set of outside eyes on the EHR contract. We appreciate your support and want to make sure we get to the best place possible for Veterans, the country and taxpayers. As we are incredibly grateful to you for volunteering your time, we want to make this as easy as possible for you. Here are 3 next steps.

- 1) We will need you to sign the attached NDA. Please return to (b)(6)
- 2) Matt will then send you the latest package under separate cover.
- 3) Given government contracts are different than what you are used to reading, we would propose a quick phone call so that we can orient you to the contract and help focus you on the parts where your expertise will be most valuable. (b)(6) (b)(6) (who is the government contracting officer) and John Windom (who is our EHR leader) will lead this from our side. I will ask (b)(6) c'd) here to help set up a time. We can either do this all together, if calendars match up, or separately if need be.

We have also connected with Stephanie Reel, Stan Huff, Dr. Karson, Dr. Ko, Dr. Shretha, and Jon Manis who all have all received the NDA and we are working with them. I am hoping to connect with Dr. Cooper today.

Thanks again!
Scott

Document ID: 0.7.1705.630946-000004

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/cn=recipients/cn=vacosandoc>

Filename: Perlmutter.EHR NDA v2 mbs.pdf <extracted>

Last Modified: Mon Aug 13 10:46:17 CDT 2018

NON-DISCLOSURE AGREEMENT (Dated March 13, 2018)

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Planning for an electronic health record acquisition

Dated Tuesday March 13, 2018

Page | 2

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- ☐ Executive Order No. 12958;
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- ☐ Section 1034 of title 10, United States Code, as amended by the Military Whistleblower Protection Act (governing disclosure to Congress by members of the military);
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- ☐ The statutes which protect against disclosure that may compromise the national security, including sections 641, 793, 794, 798, and 952 of title 18, United States Code, and section 4(b) of the Subversive Activities Act of 1950 (50 U.S.C. § 783(b)).

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Signature:

(b)(6)

Name Printed: Isaac Perlmutter

Organizational Conflict(s) of Interest (OCIs):

Document ID: 0.7.1705.630946-000005

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: [EXTERNAL] Re: VA EHR NDA (3).msg <extracted>

Last Modified: Mon Aug 13 10:46:17 CDT 2018

[EXTERNAL] Re: VA EHR NDA (3) msg extracted> for Printed Item: 37 (Attachment 5 of 8)
To: Blackburn, Scott R. (DISABLED ACC T)[Scott.Blackburn@va.gov]
Cc: IF(b)(6)@frenchangel59.com[(b)(6)]@gmail.com[(b)(6)]@gmail.com]; Bruce Moskowitz (b)(6)@mac.com]; (b)(6); Windom, John H.[John.Windom@va.gov]; DJS[vacodjs1@va.gov]
From: Marc Sherman
Sent: Tue 3/13/2018 5:39:36 PM
Subject: [EXTERNAL] Re: VA EHR NDA
[EHR NDA v2.pdf](#)
[EHR NDA v2 mbs.pdf](#)
[EHR NDA v2 RL.pdf](#)

Scott, Matt and John

Thank you for the NDA draft that you sent along and the organized approach. I have attached the following to close the loop:

1. a marked up version of the NDA with a few necessary adjustments in red-line so you can see the changes that were made,
2. a blank copy of the amended NDA for Bruce and Ike to sign, and
3. a signed version by me of the amended NDA.

Thanks and happy to help as requested.

Marc

On Tue, Mar 13, 2018 at 10:31 AM, Blackburn, Scott R. <Scott.Blackburn@va.gov> wrote:

Ike, Bruce, Marc:

Thank each of you for agreeing to lend an extra set of outside eyes on the EHR contract. We appreciate your support and want to make sure we get to the best place possible for Veterans, the country and taxpayers. As we are incredibly grateful to you for volunteering your time, we want to make this as easy as possible for you. Here are 3 next steps.

- 1) We will need you to sign the attached NDA. Please return to (b)(6)
- 2) Matt will then send you the latest package under separate cover.
- 3) Given government contracts are different than what you are used to reading, we would propose a quick phone call so that we can orient you to the contract and help focus you on the parts where your expertise will be most valuable. (b)(6) (b)(6) who is the government contracting officer) and John Windom (who is our EHR leader) will lead this from our side. I will ask (b)(6) c'd here to help set up a time. We can either do this all together, if calendars match up, or separately if need be.

We have also connected with Stephanie Reel, Stan Huff, Dr. Karson, Dr. Ko, Dr. Shretha, and Jon Manis who all have all received the NDA and we are working with them. I am hoping to connect with Dr. Cooper today.

Thanks again!

Scott

AMERICAN
OVERSIGHT

VA-18-0298 and VA-18-0299-H-000437

Scott Blackburn

Acting CIO & Executive-in-Charge, Office of Information & Technology

Department of Veterans Affairs

Document ID: 0.7.1705.630946-000006

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: EHR NDA v2 mbs.pdf <extracted>

Last Modified: Mon Aug 13 10:46:17 CDT 2018

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Signature:

(b)(6)

Name Printed: Marc Sherman

Organizational Conflict(s) of Interest (OCIs):

Document ID: 0.7.1705.630946-000007

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdl)
/cn=recipients/cn=vacosandoc>

Filename: EHR NDA v2 RL.pdf <extracted>

Last Modified: Mon Aug 13 10:46:17 CDT 2018

(b)(6)

(b)(6)

Document ID: 0.7.1705.630946-000008

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: EHR NDA v2.pdf <extracted>

Last Modified: Mon Aug 13 10:46:17 CDT 2018

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Signature:

Name Printed:

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From: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=vacosandoc>
To: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=vacosandoc>
Cc:
Bcc:
Subject: FW: Please Review Tonight
Date: Mon Aug 13 2018 11:46:17 EDT
Attachments: [EXTERNAL] NDA.pdf (1).msg
NDA.pdf
[EXTERNAL] RE: VA EHR NDA (2).msg
Perlmutter.EHR NDA v2 mbs.pdf
[EXTERNAL] Re: VA EHR NDA (3).msg
EHR NDA v2 mbs.pdf
EHR NDA v2 RL.pdf
EHR NDA v2.pdf

Camilo Sandoval

202-461-6910

From: Sandoval, Camilo J.
Sent: Friday, May 04, 2018 2:16 AM
To: Spero, Casin D. <Casin.Spero@va.gov>; Hayes-Byrd, Jacquelyn <Jacquelyn.Hayes-Byrd@va.gov>; O'Rourke, Peter M. <Peter.ORourke@va.gov>
Subject: RE: Please Review Tonight

And in case anyone ask, here are the signed NDA's of Ike, Bruce, and Marc.

From: Sandoval, Camilo J.
Sent: Friday, May 04, 2018 2:12 AM
To: Spero, Casin D.; Hayes-Byrd, Jacquelyn; O'Rourke, Peter M.
Subject: RE: Please Review Tonight

Pete—

This request from members of congress is based on inaccurate reporting by Arthur Allen from Politico, which was fueled by David Shulkin and Scott Blackburn. In fact, the real outside interference and conflict of interest came from Peter Levin, who was attempting to shape the direction of ongoing contract negotiations between the VA and Cerner. According to John Windom and Ash Zenooz, on several occasions Secretary Shulkin suggested to the EHRM team that Peter Levin be hired as a direct contractor. When those efforts failed, Peter Levin then acquired VA contracts through MITRE with Secretary Shulkin's influence. Please note that Peter Levin, Scott Gould, Stephen Ondra and Michele Flournoy (married to Scott Gould) all work for or are associated with AMIDA and MITRE. Ironically, they were all senior VA or DOD employees under the Obama administration with access to insider information.

A key question Arthur Allen and interested members of congress should investigate and write about is, why did Shulkin and Blackburn continue to communicate with Peter Levin, and put undue pressure on John Windom to hire Peter Levin's firm—AMIDA—as a contractor. Also, why was Shulkin in such a rush to sign the Cerner contract last year (Oct/Nov) when there was over 51 major findings and recommendations added to the contract over the past several months? And for the record, it was a team of top medical CIOs and practitioners—put together by Ike Perlmutter and Bruce Moskowitz—who identified the flaws in the contract and made the recommendations, not MITRE. MITRE had advised against a strategic pause, and then took credit for the work done after.

Please read attachments.

From: Spero, Casin D.
Sent: Thursday, May 03, 2018 7:31 PM
To: Sandoval, Camilo J.; Hayes-Byrd, Jacquelyn; O'Rourke, Peter M.
Subject: RE: Please Review Tonight

Good info Cam, we may want to remind the interested parties of that.

From: Sandoval, Camilo J.
Sent: Thursday, May 03, 2018 4:13:22 PM
To: Hayes-Byrd, Jacquelyn; O'Rourke, Peter M.; Spero, Casin D.
Subject: RE: Please Review Tonight

Thank you Jacquie. If we go back to Shulkin's EHRM hearing testimony, he mentions under oath that he and Scott Blackburn requested outside, non-governmental help from the top 5 Medical CIO's. These experts are who alerted him to the many interoperability issues previously unknown to Cerner or VA staff.

From: Hayes-Byrd, Jacquelyn

Sent: Thursday, May 03, 2018 5:42 PM
To: O'Rourke, Peter M.; Sandoval, Camilo J.; Spero, Casin D.
Subject: Please Review Tonight

Please see these two documents tonight as the Dep Sec provided this to Colonel Gainey late this afternoon

And Andy will be giving it to the Secretary first in the a.m. don't want you to be blindsided and I would like for you to be prepared to discuss.

Jacquie

From: Washington, Conrad
Sent: Thursday, May 03, 2018 5:32 PM
To: Hayes-Byrd, Jacquelyn
Subject: REQUESTED SCAN

Conrad Washington

Special Assistant

Office of the Secretary

810 Vermont Ave, NW

Washington, DC 20420

202-461-7865 (O)

Conrad.washington@va.gov

VA Core Values: Integrity, Commitment, Advocacy, Respect, and Excellence—I CARE

Document ID: 0.7.1705.630888-000001

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: [EXTERNAL] NDA.pdf (1).msg <extracted>

Last Modified: Mon Aug 13 10:46:17 CDT 2018

[EXTERNAL] NDA.pdf (1).msg <extracted> from Printed Item: 46 (Attachments: (b)(6))
Cc: DJS[vacodjs1@va.gov], IP [b]@frenchangel59.com [b](6) [b]@gmail.com [b](6) [b]@gmail.com
To: Blackburn, Scott R. (DISABLED ACCT)[Scott.Blackburn@va.gov]; [b](6); Windom, John
H.[John.Windom@va.gov]
From: Bruce Moskowitz
Sent: Tue 3/13/2018 6:59:21 PM
Subject: [EXTERNAL] NDA.pdf
NDA.pdf

Sent from my iPad
Bruce Moskowitz M.D.

Document ID: 0.7.1705.630888-000002

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdl)
/cn=recipients/cn=vacosandoc>

Filename: NDA.pdf <extracted>

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Signature

Name Printed: Bruce Moskowitz, MD

Organizational Conflict(s) of Interest (OCIs):

Document ID: 0.7.1705.630888-000003

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: [EXTERNAL] RE: VA EHR NDA (2).msg <extracted>

Last Modified: Mon Aug 13 10:46:17 CDT 2018

Document ID: 0.7.1705.630888-000004

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: Perlmutter.EHR NDA v2 mbs.pdf <extracted>

Last Modified: Mon Aug 13 10:46:17 CDT 2018

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4. These provisions are consistent with, and do not supersede, conflict with, or otherwise alter the employee obligations, rights, or liabilities created by existing statute or Executive order relating to (1) classified information, (2) communications to Congress, (3) the reporting to an Inspector General of a violation of any law, rule, or regulation, or mismanagement, a gross waste of funds, an abuse of authority, or a substantial and specific danger to public health or safety, or (4) any other whistleblower protection. The definitions, requirements, obligations, rights, sanctions, and liabilities created by controlling Executive orders and statutory provisions are incorporated into this agreement and are controlling. These statutes and Executive orders include the following:

NON-DISCLOSURE AGREEMENT

Planning for an electronic health record acquisition

Dated Tuesday March 13, 2018

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-
- ☐ Executive Order No. 12958;
- ☐ The Privacy Act (5 U.S.C. § 552a);
- ☐ The Trade Secrets Act (18 U.S.C. § 1905);
- ☐ Section 7211 of title 5, United States Code (governing disclosures to Congress);
- ☐ Section 1034 of title 10, United States Code, as amended by the Military Whistleblower Protection Act (governing disclosure to Congress by members of the military);
- ☐ Section 2302(b)(8) of title 5, United States Code, as amended by the Whistleblower Protection Action (governing disclosures of illegality, waste, fraud, abuse or public health or safety threats);
- ☐ The Intelligence Identities Protection Act of 1982 (50 U.S.C. § 421 *et seq.*) (governing disclosures that could expose confidential Government agents); and
- ☐ The statutes which protect against disclosure that may compromise the national security, including sections 641, 793, 794, 798, and 952 of title 18, United States Code, and section 4(b) of the Subversive Activities Act of 1950 (50 U.S.C. § 783(b)).

Additionally, pursuant to 38 Code of Federal Regulations 1.201, all VA employees with knowledge or information about actual or possible violations of criminal law related to VA programs, operations, facilities, contracts, or information technology systems shall immediately report such knowledge or information to their supervisor, any management official, or directly to the Office of Inspector General.

Signature

(b)(6)

Name Printed: Isaac Perlmutter

Organizational Conflict(s) of Interest (OCIs):

Document ID: 0.7.1705.630888-000005

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=vacosandoc>

Filename: [EXTERNAL] Re: VA EHR NDA (3).msg <extracted>

Last Modified: Mon Aug 13 10:46:17 CDT 2018

[EXTERNAL] Re: VA EHR NDA (3) msg extracted> for Printed Item: 46 (Attachment 5 of 8)
To: Blackburn, Scott R. (DISABLED ACC I)[Scott.Blackburn@va.gov]
Cc: IF(b)(6)@frenchangel59.com; (b)(6)@gmail.com; (b)(6)@gmail.com; Bruce Moskowitz (b)(6)@mac.com]; (b)(6)
Windom, John H.[John.Windom@va.gov]; DJS[vacodjs1@va.gov]
From: Marc Sherman
Sent: Tue 3/13/2018 5:39:36 PM
Subject: [EXTERNAL] Re: VA EHR NDA
[EHR NDA v2.pdf](#)
[EHR NDA v2 mbs.pdf](#)
[EHR NDA v2 RL.pdf](#)

Scott, Matt and John

Thank you for the NDA draft that you sent along and the organized approach. I have attached the following to close the loop:

1. a marked up version of the NDA with a few necessary adjustments in red-line so you can see the changes that were made,
2. a blank copy of the amended NDA for Bruce and Ike to sign, and
3. a signed version by me of the amended NDA.

Thanks and happy to help as requested.

Marc

On Tue, Mar 13, 2018 at 10:31 AM, Blackburn, Scott R. <Scott.Blackburn@va.gov> wrote:

Ike, Bruce, Marc:

Thank each of you for agreeing to lend an extra set of outside eyes on the EHR contract. We appreciate your support and want to make sure we get to the best place possible for Veterans, the country and taxpayers. As we are incredibly grateful to you for volunteering your time, we want to make this as easy as possible for you. Here are 3 next steps.

- 1) We will need you to sign the attached NDA. Please return to (b)(6)
- 2) Matt will then send you the latest package under separate cover.
- 3) Given government contracts are different than what you are used to reading, we would propose a quick phone call so that we can orient you to the contract and help focus you on the parts where your expertise will be most valuable. (b)(6) (b)(6) (who is the government contracting officer) and John Windom (who is our EHR leader) will lead this from our side. I will ask (b)(6) (cc'd) here to help set up a time. We can either do this all together, if calendars match up, or separately if need be.

We have also connected with Stephanie Reel, Stan Huff, Dr. Karson, Dr. Ko, Dr. Shretha, and Jon Manis who all have all received the NDA and we are working with them. I am hoping to connect with Dr. Cooper today.

Thanks again!

Scott

AMERICAN
OVERSIGHT

VA-18-0298 and VA-18-0299-H-000463

Scott Blackburn

Acting CIO & Executive-in-Charge, Office of Information & Technology

Department of Veterans Affairs

Document ID: 0.7.1705.630888-000006

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: EHR NDA v2 mbs.pdf <extracted>

Last Modified: Mon Aug 13 10:46:17 CDT 2018

NON-DISCLOSURE AGREEMENT (Dated March 13, 2018)

1. I acknowledge that I have been selected to participate in the planning for an electronic health record acquisition. In the course of participating in this acquisition, I may be or have been given access to or entrusted with Source Selection Information (as defined in Federal Acquisition Regulation (FAR) 2.101 and 3.104), and/or other sensitive Government data marked as "proprietary" (e.g., restrictive legend per FAR 52.215-1) that I cannot release to others nor can I use for the financial benefit of others or myself.

Source Selection Information is defined in FAR 2.101 & 3.104 and other sensitive Government data includes data marked as "proprietary" (e.g., restrictive legend per FAR 52.215-1). Data includes all data, information and software, regardless of the medium (e.g. electronic or paper) and/or format in which the data exists, and includes data which is derived from, based on, incorporates, includes or refers to such Source Selection and/or proprietary data (collectively referred to herein as "the data"). Any data which is derived from, based on, incorporates, includes or refers to data shall be treated as Source Selection, or proprietary data and shall be subject to the terms of this Non-Disclosure Agreement.

2. I understand that 41 U.S.C. § 423, commonly referred to as the Procurement Integrity Act, and now codified at U.S.C.A. § § 2101-2107, and provisions FAR 3.104 govern the release of proprietary and source selection information. As it relates to the information that has been made available to me pursuant to this Non-Disclosure Agreement, I certify that I will not disclose any contractor bid, solicitation, proprietary, or Source Selection Information directly or indirectly to any person other than the President of the United States or a member of his administration to whom the President authorizes, another person subject to an equally restrictive Non-Disclosure Agreement related to the subject matter of this Agreement, the Secretary of the Department of Veterans Affairs or a person authorized by the head of agency or the contracting officer to receive such information. I understand that unauthorized disclosure of such information may subject me to substantial administrative, civil and criminal penalties, including fines, imprisonment, and loss of employment under the Procurement Integrity Act or other applicable laws and regulations.

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Dated Tuesday March 13, 2018

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 - ☐ The Intelligence Identities Protection Act of 1982 (50 U.S.C. § 421 *et seq.*) (governing disclosures that could expose confidential Government agents); and
 - ☐ The statutes which protect against disclosure that may compromise the national security, including sections 641, 793, 794, 798, and 952 of title 18, United States Code, and section 4(b) of the Subversive Activities Act of 1950 (50 U.S.C. § 783(b)).

Additionally, pursuant to 38 Code of Federal Regulations 1.201, all VA employees with knowledge or information about actual or possible violations of criminal law related to VA programs, operations, facilities, contracts, or information technology systems shall immediately report such knowledge or information to their supervisor, any management official, or directly to the Office of Inspector General.

Signature:

(b)(6)

Name Printed: Marc Sherman

Organizational Conflict(s) of Interest (OCIs):

Document ID: 0.7.1705.630888-000007

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: EHR NDA v2 RL.pdf <extracted>

Last Modified: Mon Aug 13 10:46:17 CDT 2018

(b)(6)

(b)(6)

Document ID: 0.7.1705.630888-000008

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdl)
/cn=recipients/cn=vacosandoc>

Filename: EHR NDA v2.pdf <extracted>

Last Modified: Mon Aug 13 10:46:17 CDT 2018

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Signature:

Name Printed:

Organizational Conflict(s) of Interest (OCIs):

From: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=vacosandoc>
To: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=vacosandoc>
Cc:
Bcc: (b)(6)@gmail.com (b)(6)@gmail.com>
Subject: FW: Please Review Tonight
Date: Mon Aug 13 2018 11:46:03 EDT
Attachments: [EXTERNAL] call today? (1).msg
[EXTERNAL] dod data sharing (2).msg
Levin slide on DoD data sharing -october 2017.pptx
[EXTERNAL] extremely confidential - eyes only - please do not forward or share -
secva message this morning (3).msg
[EXTERNAL] Fwd: amida weekly ehrm data migration update (4).msg
Amida VA EHRM Weekly Report -sept 14 -final.docx
[EXTERNAL] Re: call today? (5).msg
EsaEmbeddedMsg (6).msg
EsaEmbeddedMsg (7).msg
FW: [External] connecting scott to charlie (8).msg
FW: [EXTERNAL] dod data sharing (9).msg
ATT00001.htm
Levin slide on DoD data sharing -october 2017.pptx
FW: [EXTERNAL] roger baker (10).msg
RE: [EXTERNAL] check in (11).msg
RE: [EXTERNAL] check in (12).msg
RE: [External] connecting scott to charlie (13).msg
RE: [EXTERNAL] extremely confidential - eyes only - please do not forward or share -
secva message this morning (14).msg
RE: [EXTERNAL] follow-up from our last meeting (15).msg
RE: [EXTERNAL] Fwd: meeting with rob on wednesday (16).msg
RE: [EXTERNAL] stakeholder enterprise portal (sep) and ebenefits (17).msg
RE: [EXTERNAL] susan perez (18).msg
RE: RE: [EXTERNAL] thursday check in (19).msg
RE: Schedule important: Jack Bates' Availability - Peter needs to re-schedule (20).msg
RE: Schedule important: Jack Bates' Availability - Peter needs to re-schedule (21).msg
Windom (22).msg

Camilo Sandoval

202-461-6910

From: Sandoval, Camilo J.

Sent: Friday, May 04, 2018 2:12 AM

To: Spero, Casin D. <Casin.Spero@va.gov>; Hayes-Byrd, Jacquelyn <Jacquelyn.Hayes-Byrd@va.gov>; O'Rourke, Peter M. <Peter.ORourke@va.gov>

Subject: RE: Please Review Tonight

Pete—

This request from members of congress is based on inaccurate reporting by Arthur Allen from Politico, which was fueled by David Shulkin and Scott Blackburn. In fact, the real outside interference and conflict of interest came from Peter Levin, who was attempting to shape the direction of ongoing contract negotiations between the VA and Cerner. According to John Windom and Ash Zenooz, on several occasions Secretary Shulkin suggested to the EHRM team that Peter Levin be hired as a direct contractor. When those efforts failed, Peter Levin then acquired VA contracts through MITRE with Secretary Shulkin's influence. Please note that Peter Levin, Scott Gould, Stephen Ondra and Michele Flournoy (married to Scott Gould) all work for or are associated with AMIDA and MITRE. Ironically, they were all senior VA or DOD employees under the Obama administration with access to insider information.

A key question Arthur Allen and interested members of congress should investigate and write about is, why did Shulkin and Blackburn continue to communicate with Peter Levin, and put undue pressure on John Windom to hire Peter Levin's firm—AMIDA—as a contractor. Also, why was Shulkin in such a rush to sign the Cerner contract last year(Oct/Nov) when there was over 51 major findings and recommendations added to the contract over the past several months? And for the record, it was a team of top medical CIOs and practitioners—put together by Ike Perlmutter and Bruce Moskowitz—who identified the flaws in the contract and made the recommendations, not MITRE. MITRE had advised against a strategic pause, and then took credit for the work done after.

Please read attachments.

From: Spero, Casin D.

Sent: Thursday, May 03, 2018 7:31 PM

To: Sandoval, Camilo J.; Hayes-Byrd, Jacquelyn; O'Rourke, Peter M.

Subject: RE: Please Review Tonight

Good info Cam, we may want to remind the interested parties of that.

From: Sandoval, Camilo J.

Sent: Thursday, May 03, 2018 4:13:22 PM

To: Hayes-Byrd, Jacquelyn; O'Rourke, Peter M.; Spero, Casin D.

Subject: RE: Please Review Tonight

Thank you Jacquie. If we go back to Shulkin's EHRM hearing testimony, he mentions under oath that he and Scott Blackburn requested outside, non-governmental help from the top 5 Medical CIO's. These experts are who alerted him to the many interoperability issues previously unknown to Cerner or VA staff.

From: Hayes-Byrd, Jacquelyn
Sent: Thursday, May 03, 2018 5:42 PM
To: O'Rourke, Peter M.; Sandoval, Camilo J.; Spero, Casin D.
Subject: Please Review Tonight

Please see these two documents tonight as the Dep Sec provided this to Colonel Gainey late this afternoon

And Andy will be giving it to the Secretary first in the a.m. don't want you to be blindsided and I would like for you to be prepared to discuss.

Jacquie

From: Washington, Conrad
Sent: Thursday, May 03, 2018 5:32 PM
To: Hayes-Byrd, Jacquelyn
Subject: REQUESTED SCAN

Conrad Washington
Special Assistant
Office of the Secretary
810 Vermont Ave, NW
Washington, DC 20420
202-461-7865 (O)
Conrad.washington@va.gov

Document ID: 0.7.1705.630777-000001

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: [EXTERNAL] call today? (1).msg <extracted>

Last Modified: Mon Aug 13 10:46:03 CDT 2018

[EXTERNAL] call today? (1).msg <extracted> for Printed Item: 55 (Attachment 1 of 26)
To: Blackburn, Scott R. (DISABLED ACC1)[Scott.Blackburn@va.gov]
From: Peter Levin
Sent: Mon 9/4/2017 5:20:22 PM
Subject: [EXTERNAL] call today?

Hi Scott,
I hope this finds you well and enjoying your last weekend, for now ;), as a federal employee. I am sorry to disturb you. I hope you'll agree it was the right thing to do.

Good news and bad news:

The good news is that Marcy and Rob apparently had a good discussion this week. You may or may not know this, and you may or may not understand this, but it is a direct result of your "intervention". I can explain as useful. But it was useful.

The bad news is that things with EHRM are going off the rails a bit. My advice from folks you know and trust is to raise this to David. I can see this going both ways. On the one hand, he needs to know. On the other hand, it will hurt Windom (which I absolutely don't want).

The root cause of the trouble is that he (David, and John W) are being told that everything is "all set" on data migration. It is simply not true. The people doing the telling are eager to see MITRE/Amida bounced from the team. I got that call on Friday afternoon.

As usual, the contractors are just telling leadership what they want to hear. And the government employees have an agenda all their own. I personally admire Windom a lot, but he does not have the technical judgment to make a decision, and he is relying on Short a lot. Sweeping stuff under the rug (for the next guy) is a pretty typical VA approach.

Indeed, the reason so many programs have failed at VA is because people don't accept and deal with the truth. Eventually that blows up and kills the program. This is what happened to HealthVet, CoreFLS, Strategic Asset Management, Scheduling, and many other big VA IT programs. The only way we made VBMS successful was by forcing VBA and OIT to deal with all the hard truths of the program. That's exactly not what's happening here.

My draft to the secretary is below, and I think I should send it later this evening or very first thing (6am) tomorrow. Your advice and perspective would be invaluable.

Thanks and best,

Peter

=====

Mr. Secretary:

This email is to alert you that I have been told my contract with VA to analyze the data migration plan for Cerner is at risk and may be cancelled as soon as tomorrow.

Senior members of the program office are not happy that I continue to tell you that I do not believe their data migration plan is adequate, and will put the program at long-term risk.

For as long as you care to hear it, I will continue to tell you the facts as I see them.

And yes, this also means I am willing to forgo my sub-contract to do so. You should expect nothing less from any of us.

Document ID: 0.7.1705.630777-000002

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: [EXTERNAL] dod data sharing (2).msg <extracted>

Last Modified: Mon Aug 13 10:46:03 CDT 2018

To: Shulkin, David J., MD[David.Shulkin@va.gov]
Cc: Windom, John H.[John.Windom@va.gov]; Blackburn, Scott R. (DISABLED ACCT)[Scott.Blackburn@va.gov]
From: Peter Levin
Sent: Fri 10/20/2017 10:49:17 AM
Subject: [EXTERNAL] dod data sharing
Levin slide on DoD data sharing -october 2017.pptx

Dear Mr Secretary,

further to our discussion on Monday about DoD data sharing, please find attached a two-slide power point that captures the current situation, with a proposed solution that is achievable and affordable.

The current approach to a single shared VA-DoD EHR system has two critical limitations:

- 1) The data set shared by DoD excludes key data elements needed for complete point-of-care clinical decision support (including but not limited to lab results, radiology reports, and Tricare claims data)
- 2) DoD data is made available in Cerner's Millennium EHR for *only* servicemembers who have been seen at an MHS Genesis-converted site. This means that fewer than 10 percent of servicemembers actually have data accessible through the Cerner platform.

To the topic of "return data from Cerner", we strongly recommend that Cerner-provided Medicines and Allergies be provided back to VA (HDR) and DoD (CDR) to leverage built-in critical safety checks that otherwise will not have complete data and which JLV - just a viewer - will not catch.

The following sentence is proposed language that captures our suggestion to you, and that you could use to convey secretarial intent, perhaps also to colleagues and partners at DoD:

I believe there would be tremendous benefit if DoD expanded the available data set to include a complete longitudinal medical record (excluding fields indicating force readiness) now. This can be accomplished by conducting a bulk data load of historical data from the legacy DoD EHR to HealtheIntent, similar to the VA approach. Only then can we legitimately claim our records are consolidated and the platforms unified.

Most respectfully,

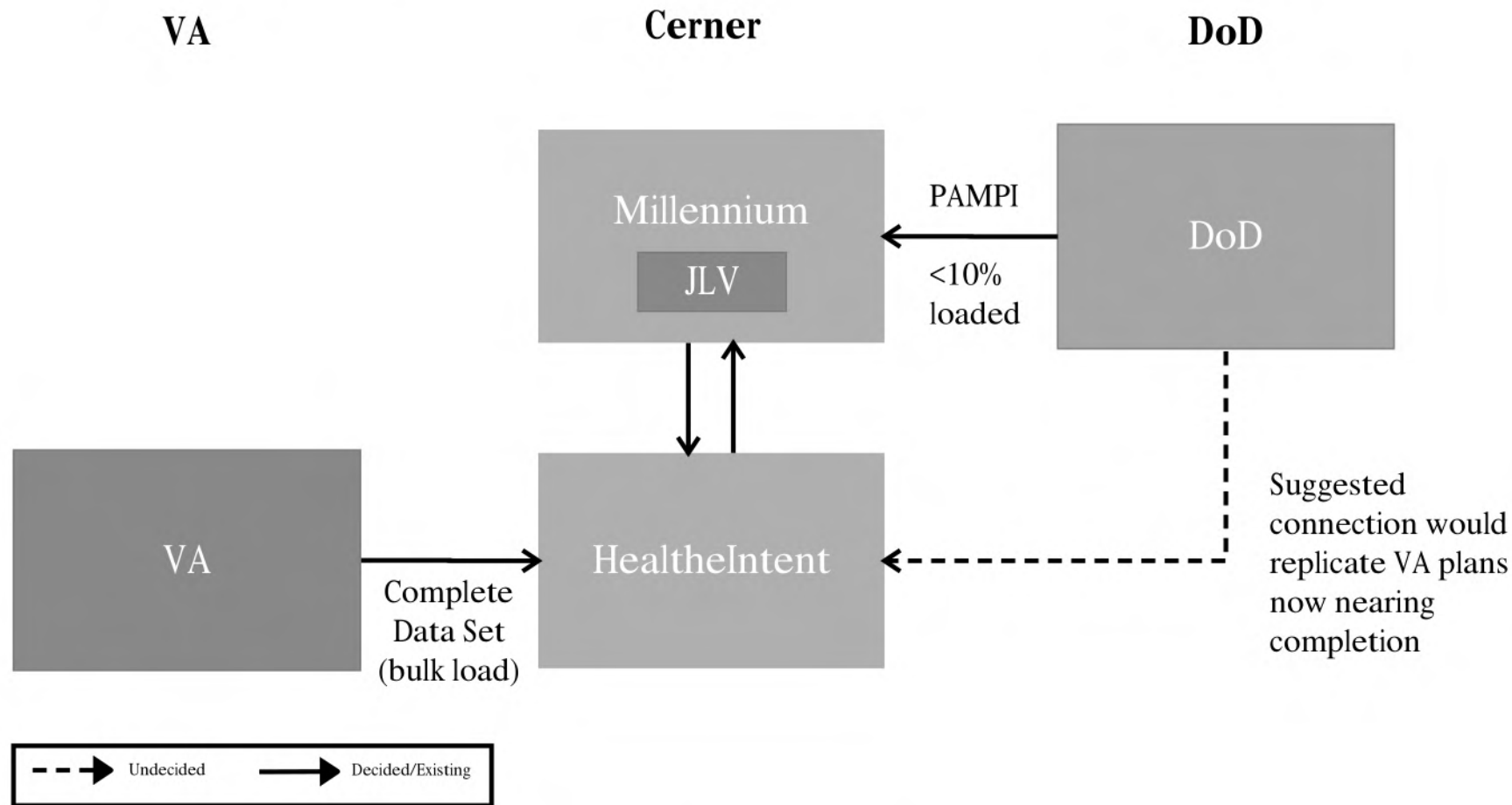
Peter

Document ID: 0.7.1705.630777-000003

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdl)
/cn=recipients/cn=vacosandoc>

Filename: Levin slide on DoD data sharing -october 2017.pptx <extracted>

Last Modified: Mon Aug 13 10:46:03 CDT 2018



PAMPI – Problems, Allergies, Medications, Procedures, Immunizations

Not currently included: Laboratory Results, Radiology Reports, Vital Signs, Notes, and Tricare Claims data

JLV is displayed within Millennium – Attaches to legacy DoD, VistA, other Cerner instances, eHealth Exchange

Important: Cerner provided Medicines and Allergies should be provided back to VA (HDR) and DoD (CDR)

VA-DoD Data Comparison

Cerner Data Domain		VA Migration	DoD Migration
1.	Demographics	X	X
2.	Allergies	X	X
3.	Conditions*	X	X
4.	Immunizations	X	X
5.	Laboratory Results	X	-
6.	Medications	X	X
7.	Procedures	X	X
8.	Appointments	X	-
9.	Encounters	X	-
10.	Notes and Radiology Reports	X	-
11.	Advance Directives	TBD	-
12.	(Tricare for DoD) Claims Data	TBD	-
13.	Providers	TBD	-
14.	Questionnaires	TBD	-
* Conditions are also referred to as problems/diagnoses			
** Only Anatomic Pathology laboratory results			

The DoD Migration is focused on migrating the “PAMPI+” domains directly to Millennium, which constitute a subset of the domains VA is targeting for migration.

Document ID: 0.7.1705.630777-000004

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: [EXTERNAL] extremely confidential - eyes only - please do not forward or share - secva message this morning (3).msg <extracted>

Last Modified: Mon Aug 13 10:46:03 CDT 2018

[EXTERNAL] extremely confidential - eyes only - please do not forward or share - secva message this morning (3).msg <extracted> for Printed Item: 55 (Attachment 4
To: Wynn, Jackie (b)(6) [REDACTED]@mitre.org]; Blackburn, Scott R. (DISABLED ACCT)[Scott.Blackburn@va.gov]
From: Peter Levin
Sent: Thur 1/4/2018 10:58:02 AM
Subject: [EXTERNAL] extremely confidential - eyes only - please do not forward or share - secva message this morning

Jackie suggested last night that I close the loop with the secretary. She was right/great idea.

My message to him this morning, below.

Scott, literally my waking thought was of you. Best of luck with the surgery.

And best personal regards to both of you, -P

===

Hi David,

Three meetings yesterday:

1) with Windom and two MITRE reps - WH issues about my previous VA affiliation came up - I believe these were fully addressed to John's satisfaction. As you know, the outcome of the presidential election was a surprise; there are some hurt feelings from an appointee aspirant who thought I could have done more to help them *prior* to the election. This was also addressed to his satisfaction.

That said, we spent most of the hour reviewing information architecture, surprisingly good agreement (he liked the way I explained it, exactly the same way I explain it to you [PLL - and Scott and Jackie]). From a content perspective we are fully aligned, in sequence, priority, and most of the packaging. The discussion confirmed that.

2) unexpectedly, as I was walking out (coat on, rushing to elevator) Ash came out and asked me to speak to Camilo Sandoval, who I did not know or know of, and had not previously met. From a technical perspective, I had the identical conversation with him that I just had, literally minutes before, with John W. When I left I thought we were okay.

We weren't. I left the building and was well on my way to my office when John called me back.

3) we then had the architectural discussion for the third time, this time with Camilo, Ash, and Short (who came in late but was there for most of it, and did most of the talking after he arrived).

In a professional-but-clear way, after net five hours, I went around the table and asked each of the participants a) if there was any difference or deviation between the discussions we had independently and the ones we had together (the answer was no, as it should have been) and b) if whatever crisis or misunderstanding existed before the third meeting was fully and satisfactorily resolved (the answer was yes, as it should have been).

There were some things in the Camilo discussion that may be worth a short call (or visit, as you prefer).

Best, -P

Document ID: 0.7.1705.630777-000005

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: [EXTERNAL] Fwd: amida weekly ehrm data migration update (4).msg <extracted>

Last Modified: Mon Aug 13 10:46:03 CDT 2018

[EXTERNAL] Fwd: amida weekly ehrm data migration update (4).msg <extracted> for Printed Item: 55 (Attachment 5 of 26)
To: Blackburn, Scott H. (DISABLED ACCT)[Scott.Blackburn@va.gov]
From: Peter Levin
Sent: Thur 9/14/2017 9:43:47 PM
Subject: [EXTERNAL] Fwd: amida weekly ehrm data migration update
Amida VA EHRM Weekly Report -sept 14 -final.docx

Scott - confidential to you, please do not forward or share.

MITRE instructed us to stop sending these to VA (Windom, Short, Bates, Hilton, Mingo) three or four weeks ago; I doubt they forward these or anything like them to stakeholders there, so I don't know what they now know (or think). This report is sent by my program manager to theirs; I normally cc Jackie as a courtesy. Jimmy asked this week to be included.

I have not spoken with John W (or the secretary) since before Labor Day.

I did speak to David immediately after his "announcement" of the data migration strategy in mid-August, and advised caution on technical grounds. That was the last I spoke with him on this project. I have not spoken to him at all about the threat to end our work at MITRE. We *have* had brief (and successful) interactions on other non EHRM topics.

Most respectfully and best regards,

Peter

----- Forwarded message -----

From: Peter Levin (b)(6) @amida.com>
Date: Thu, Sep 14, 2017 at 4:05 PM
Subject: amida weekly ehrm data migration update
To: "Wynn, Jackie" <(b)(6) @mitre.org>, "Providakes, James F." (b)(6) @mitre.org>
Cc: "Fugate, Tom" <(b)(6) @mitre.org>

Dear Jackie, dear Jimmy,
please find attached the Amida weekly report, due today.

Its long, I know. We've been at it now for 6 weeks, and this is basically what I would have expected in terms of depth, synthesis, and detail.

Please note that the go-forward plan (something we worked on hard last week) is included in Appendix A, exhibit 7 (the data migration plan and LOE).

Also, if you just look at one thing, please go to figure 9 on page 23. Honestly, this is the "money shot" because it is such a good example. Basically it is really hard to do data mapping (right). The caption reads:

The Vx130 Immunization Domain includes 18 fields, and the Cerner Immunization Data Domain model includes 23 fields. This figure illustrates the beginning of a crosswalk to show example migration paths for six fields from the source data model to the target Cerner model. Note that this is an incomplete crosswalk intended only for purposes of illustration.

Many thanks and best regards,

Peter

Document ID: 0.7.1705.630777-000006

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: Amida VA EHRM Weekly Report -sept 14 -final.docx <extracted>

Last Modified: Mon Aug 13 10:46:03 CDT 2018

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**Weekly Status Report
For the MITRE Corporation**

**On Data Migration Support for VA
Electronic Health Record Modernization**

September 14, 2017

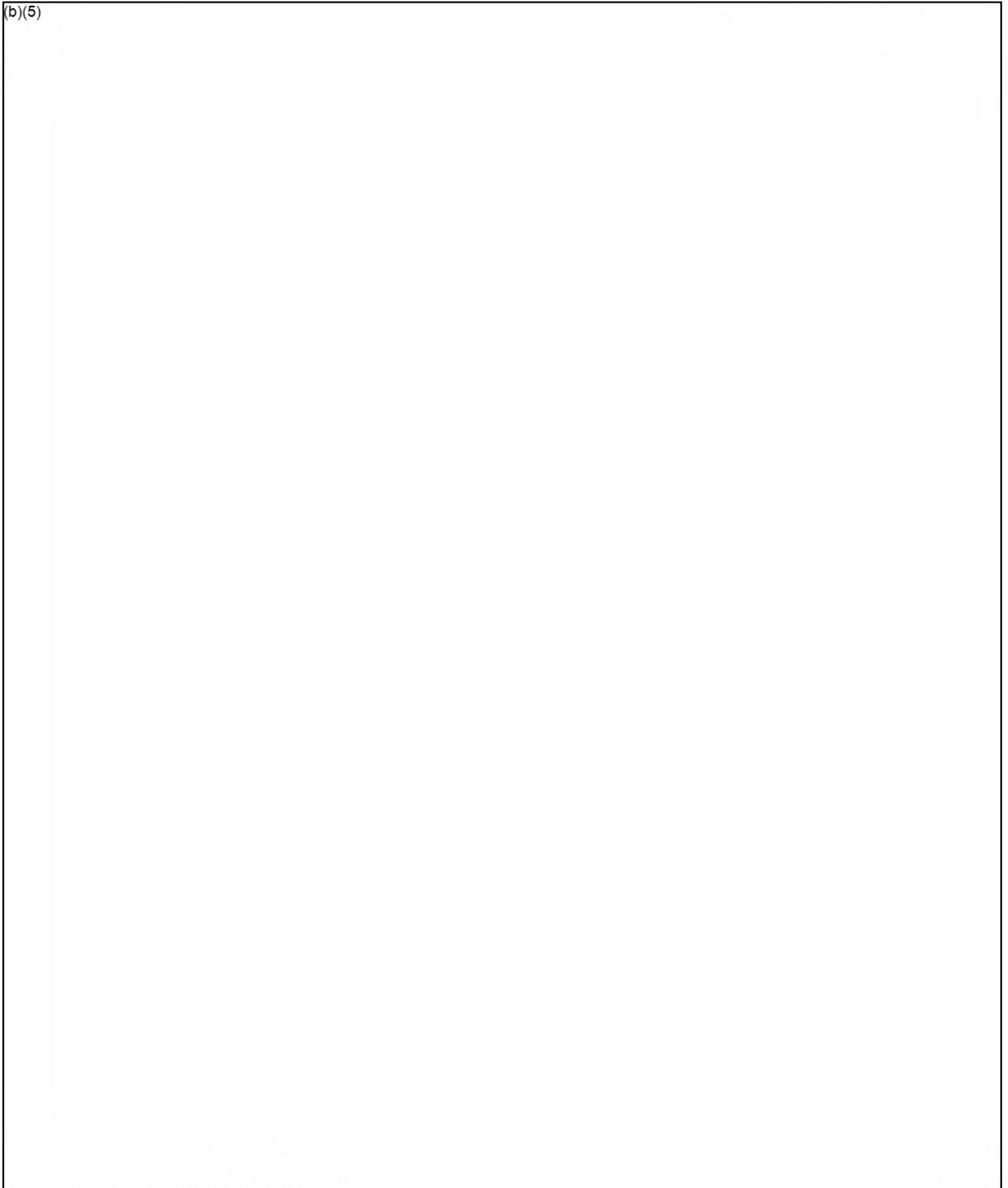
Jeremy Collins
Joy Hwang
Matthew McCall
Leslie Ramirez
Afsin Ustundag
Peter L. Levin

Prepared by
Amida Technology Solutions, Inc.

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September 14, 2017

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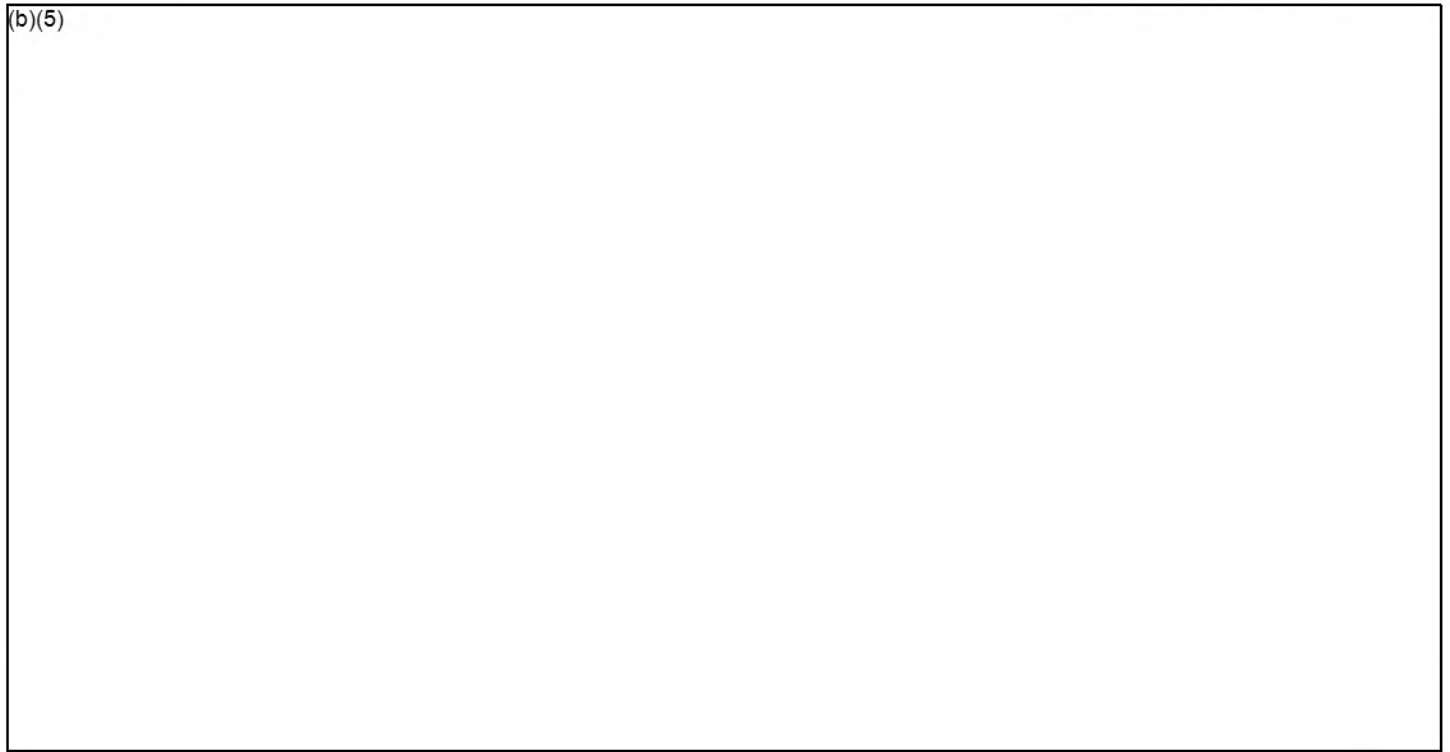
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II. Weekly Summary

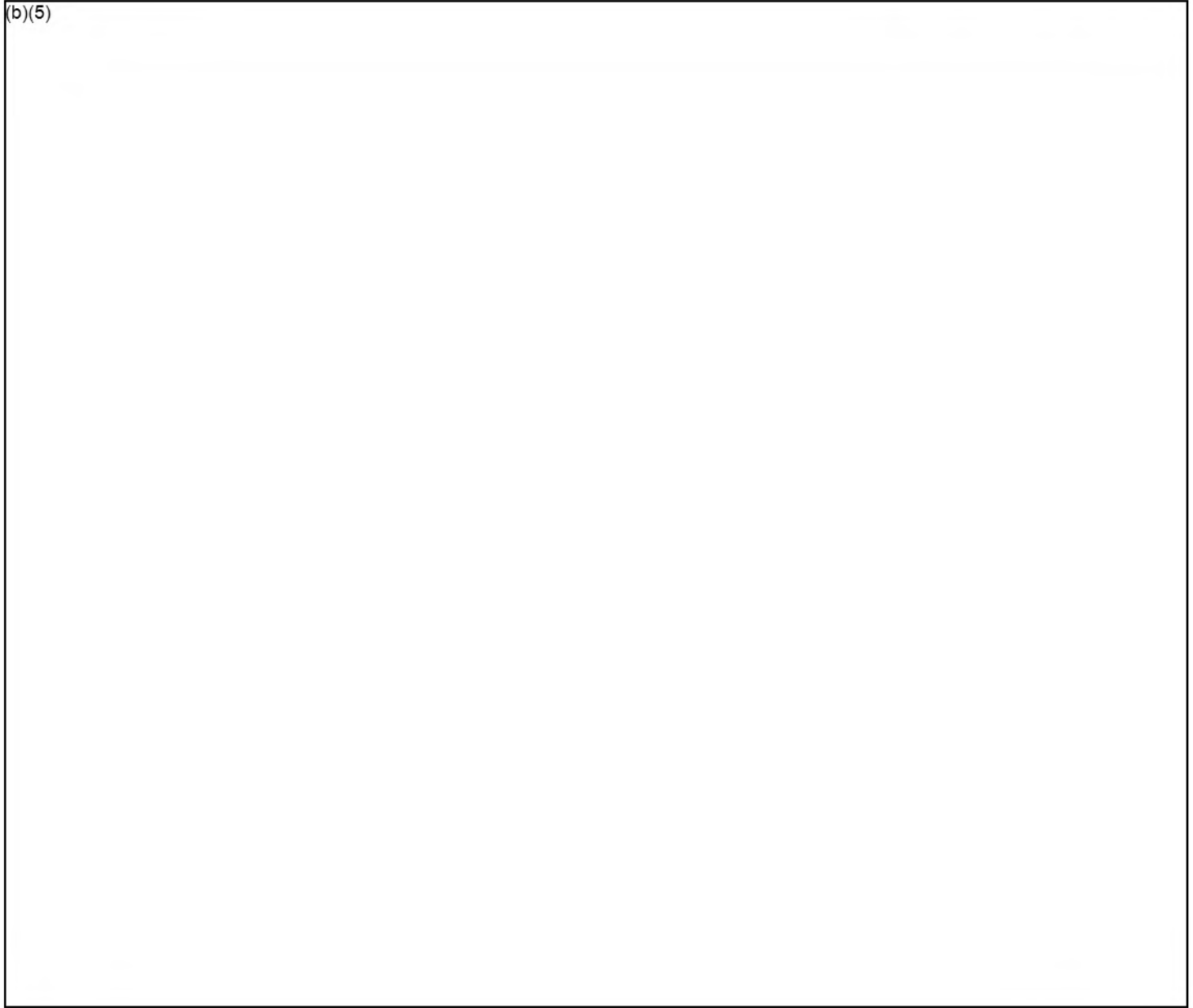
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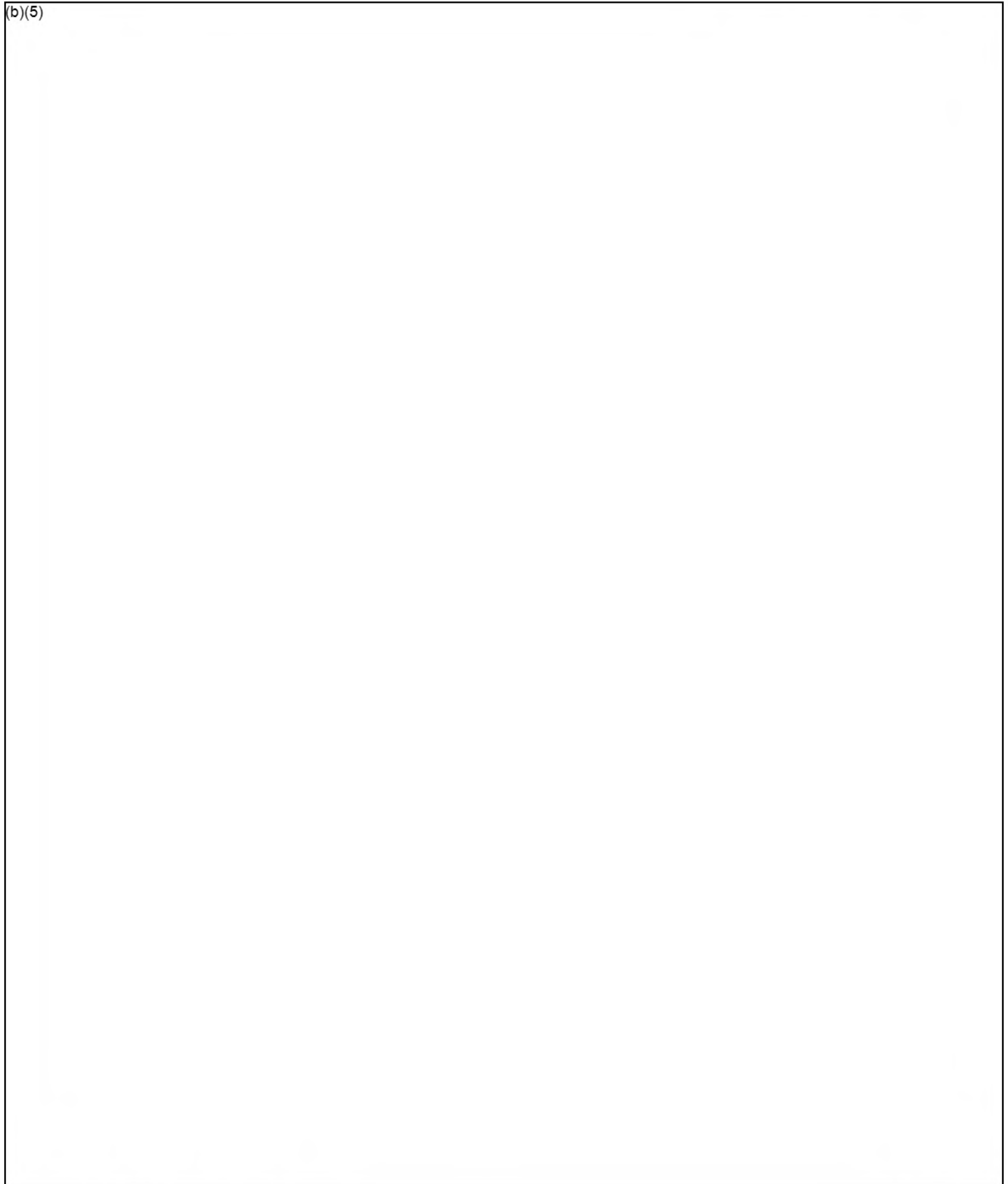
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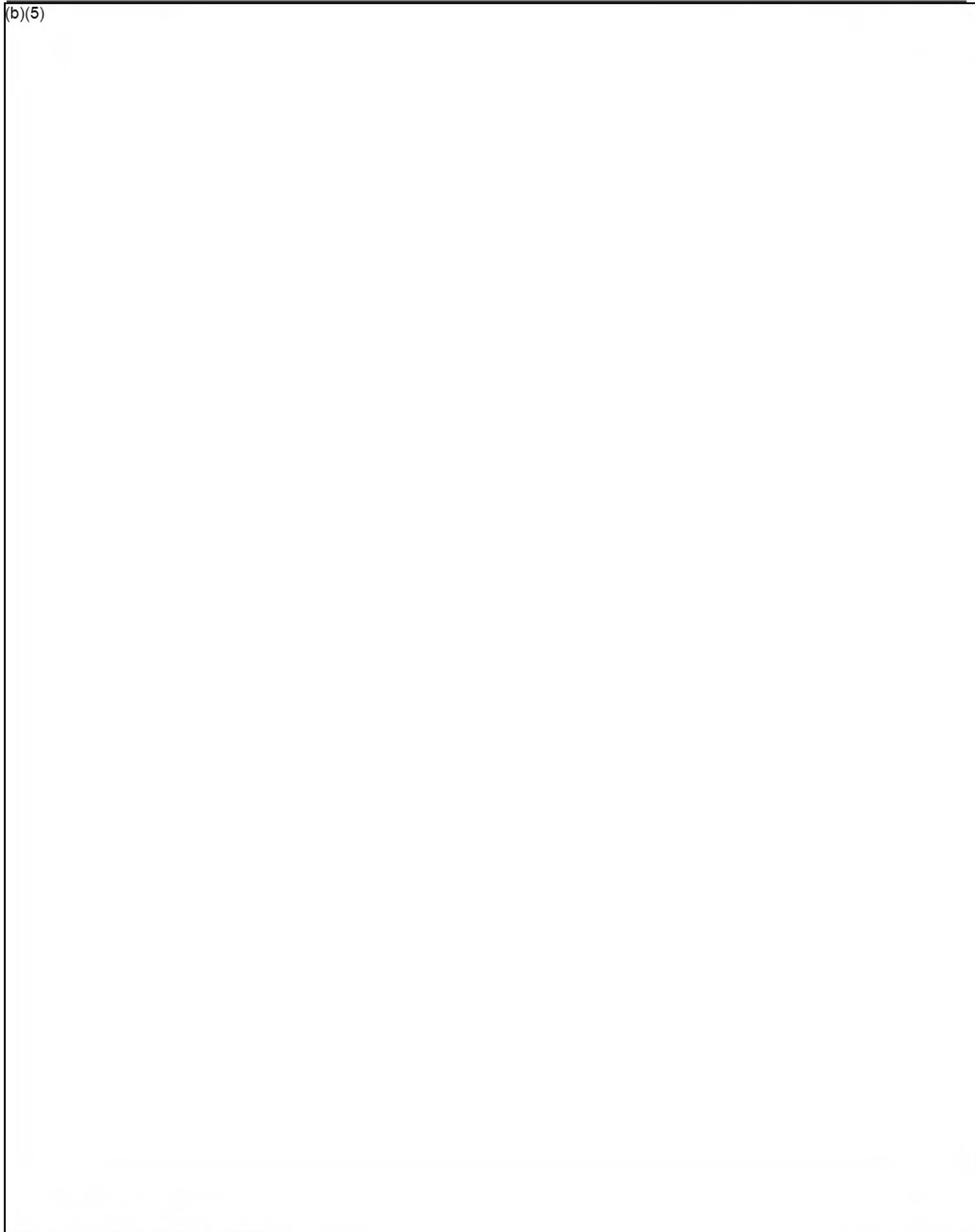


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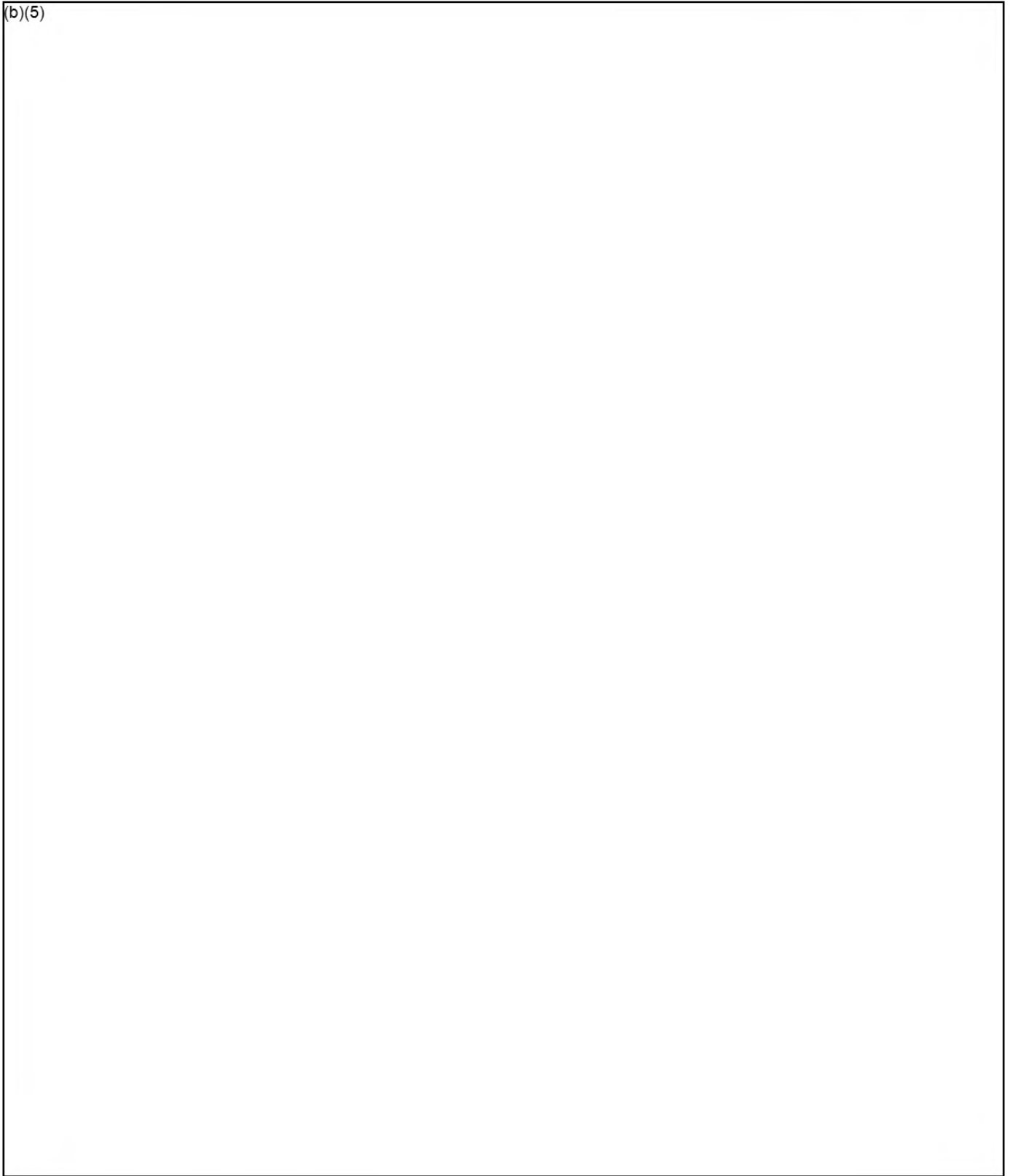


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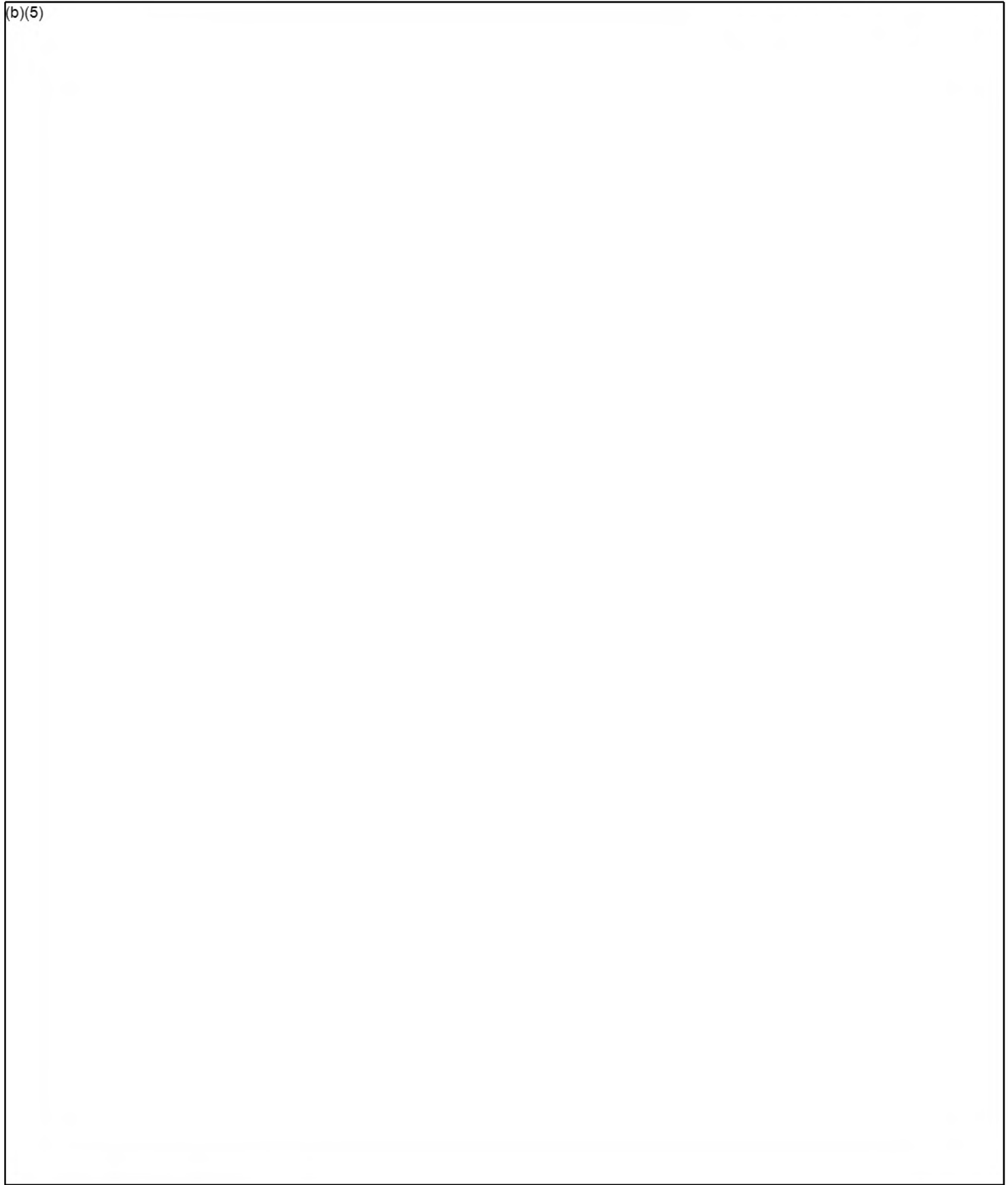
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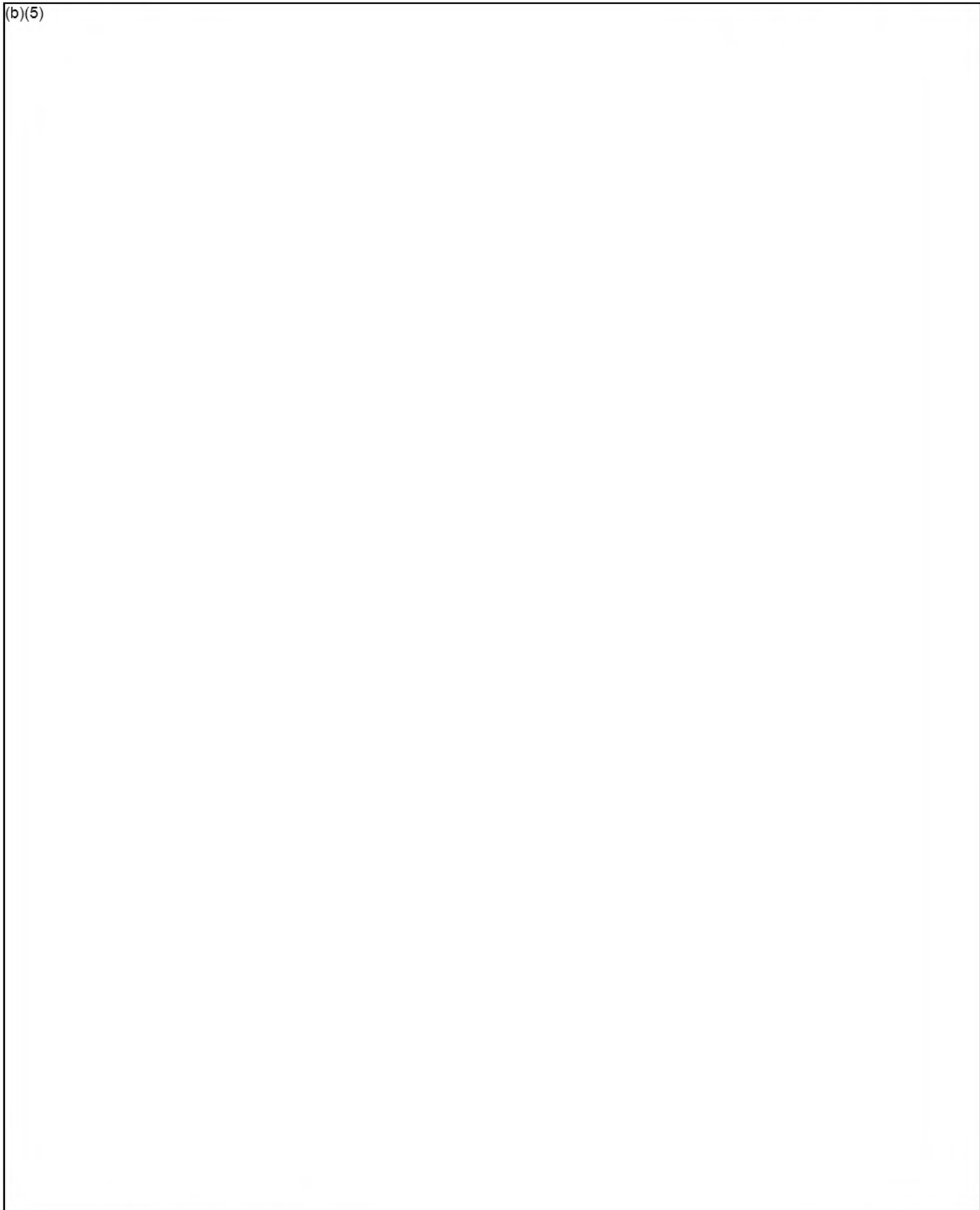


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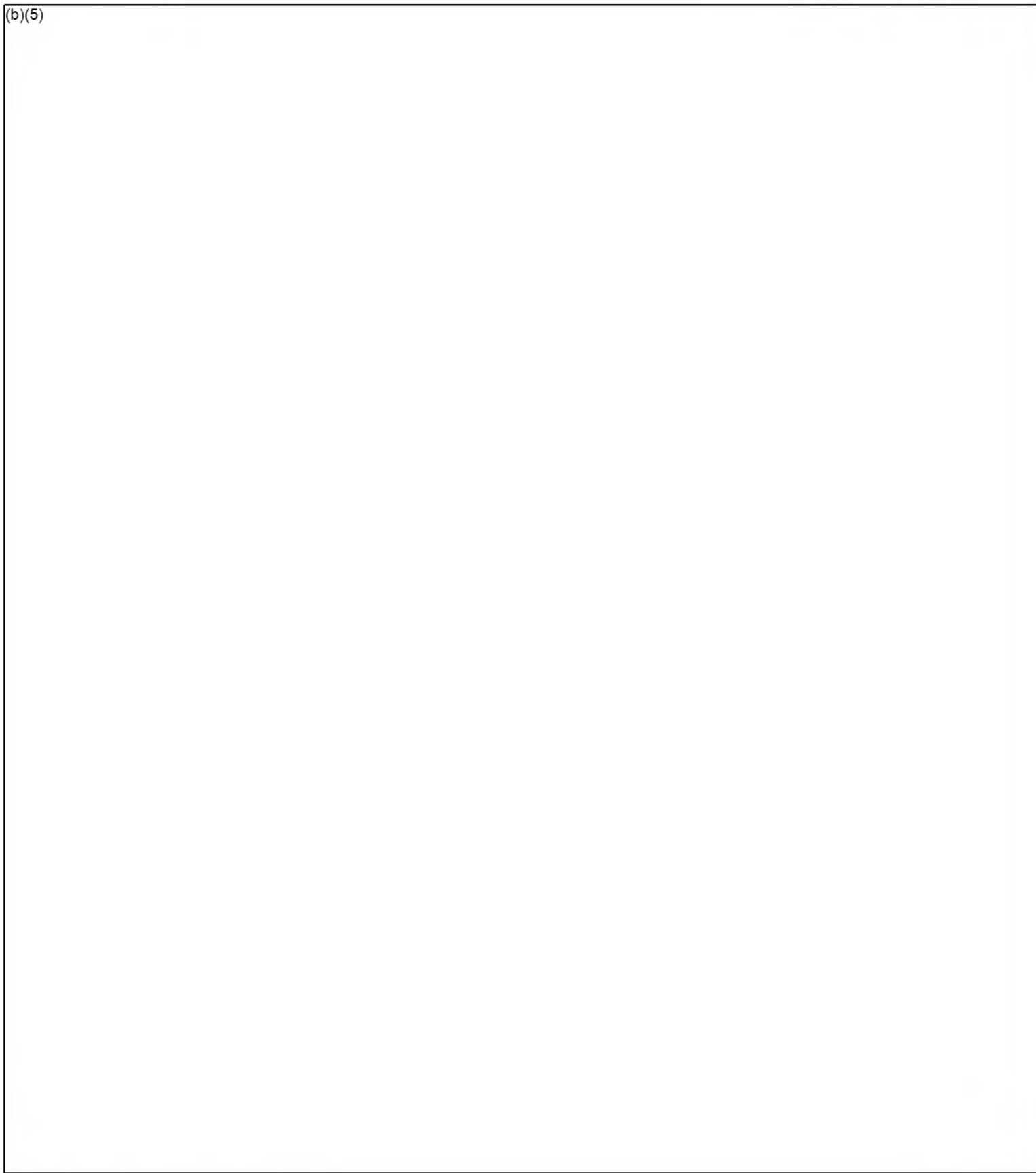


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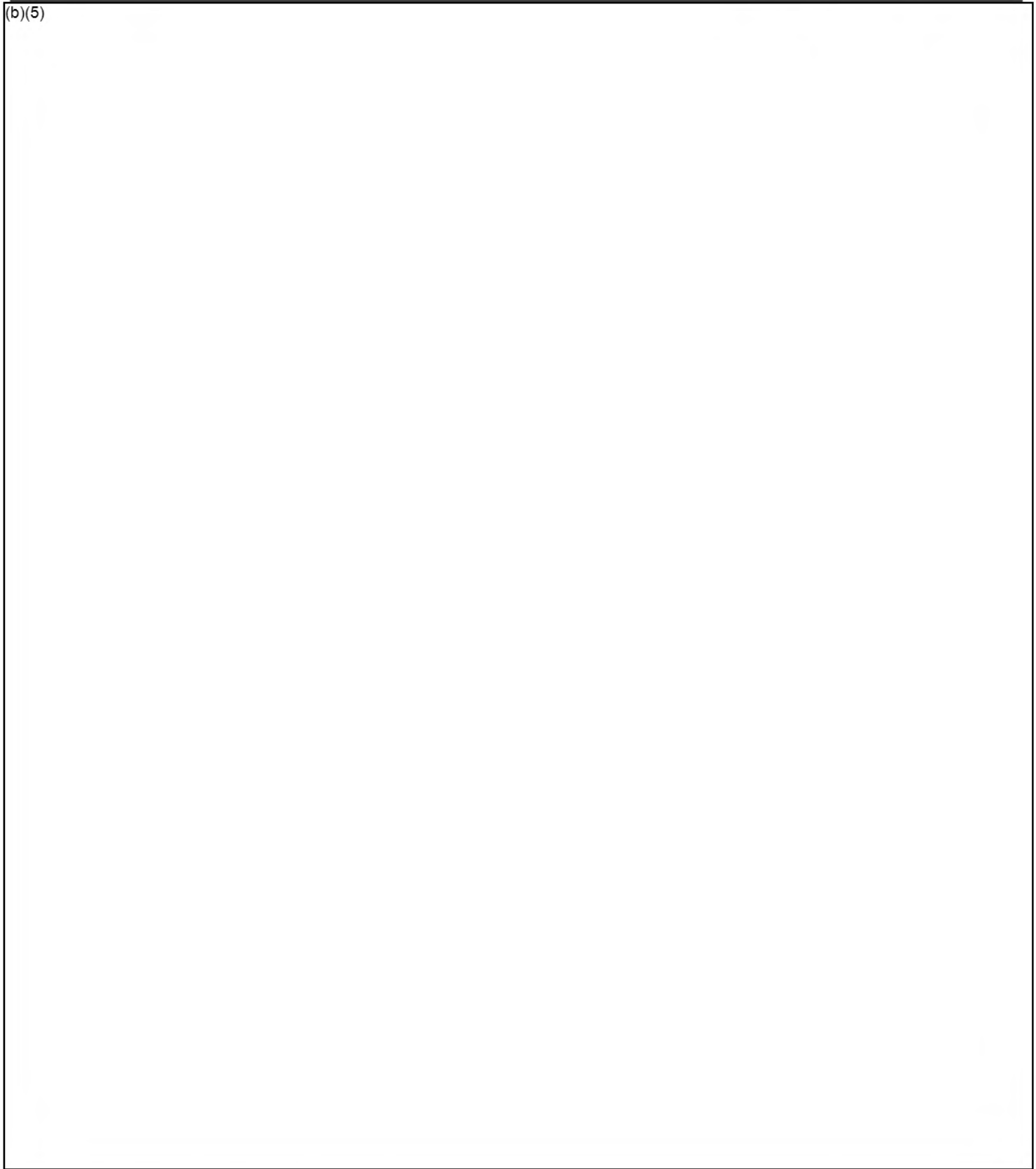
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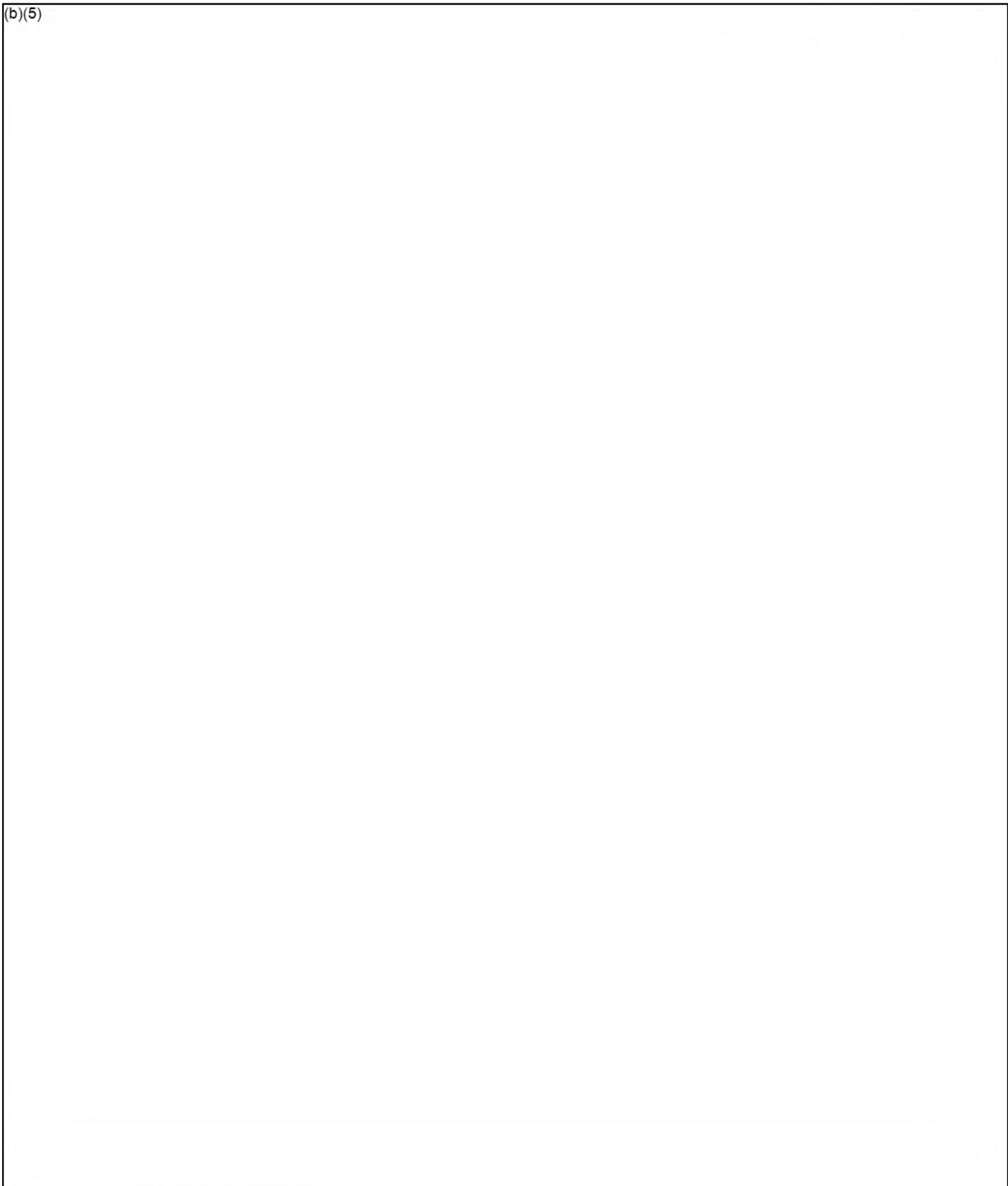
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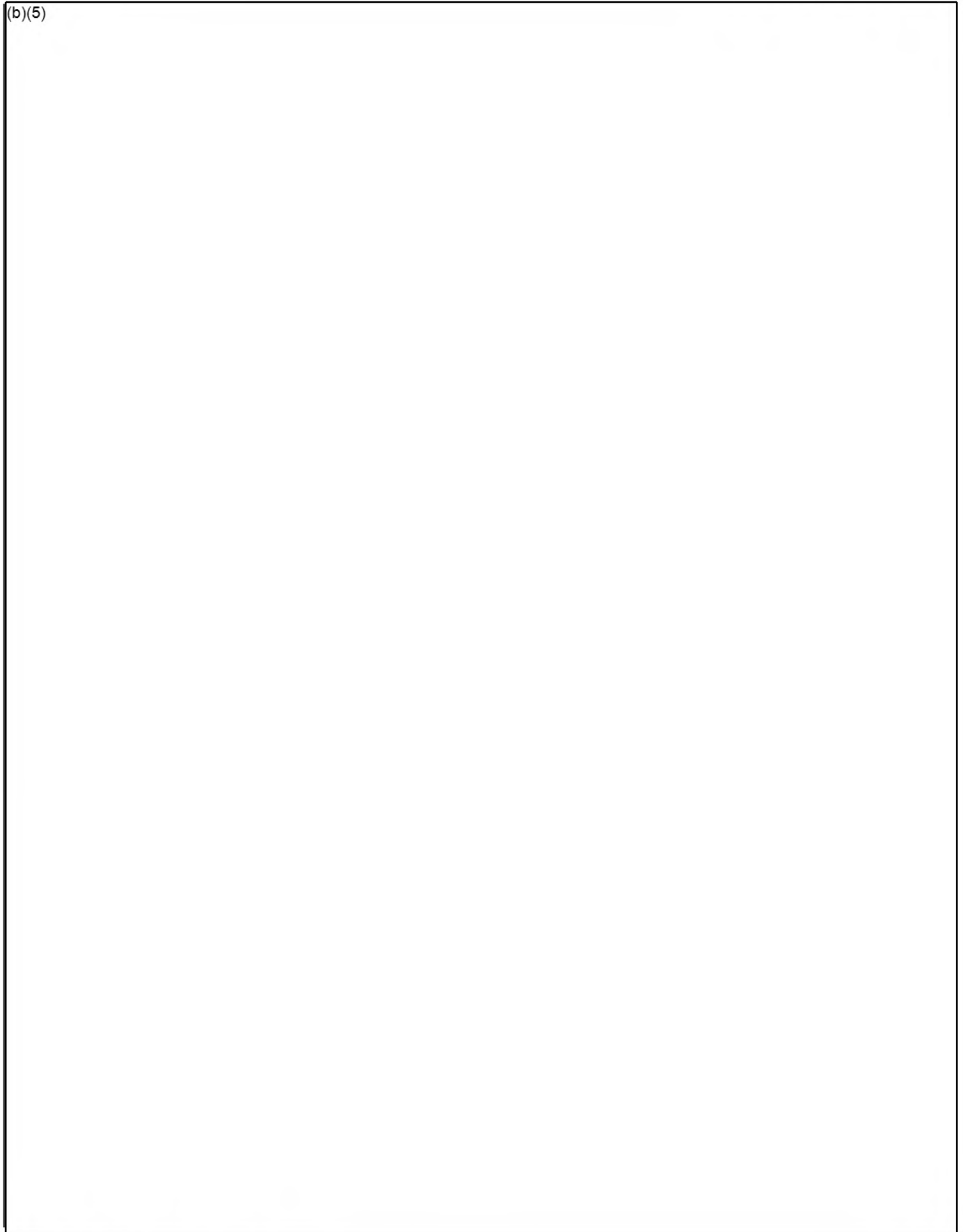


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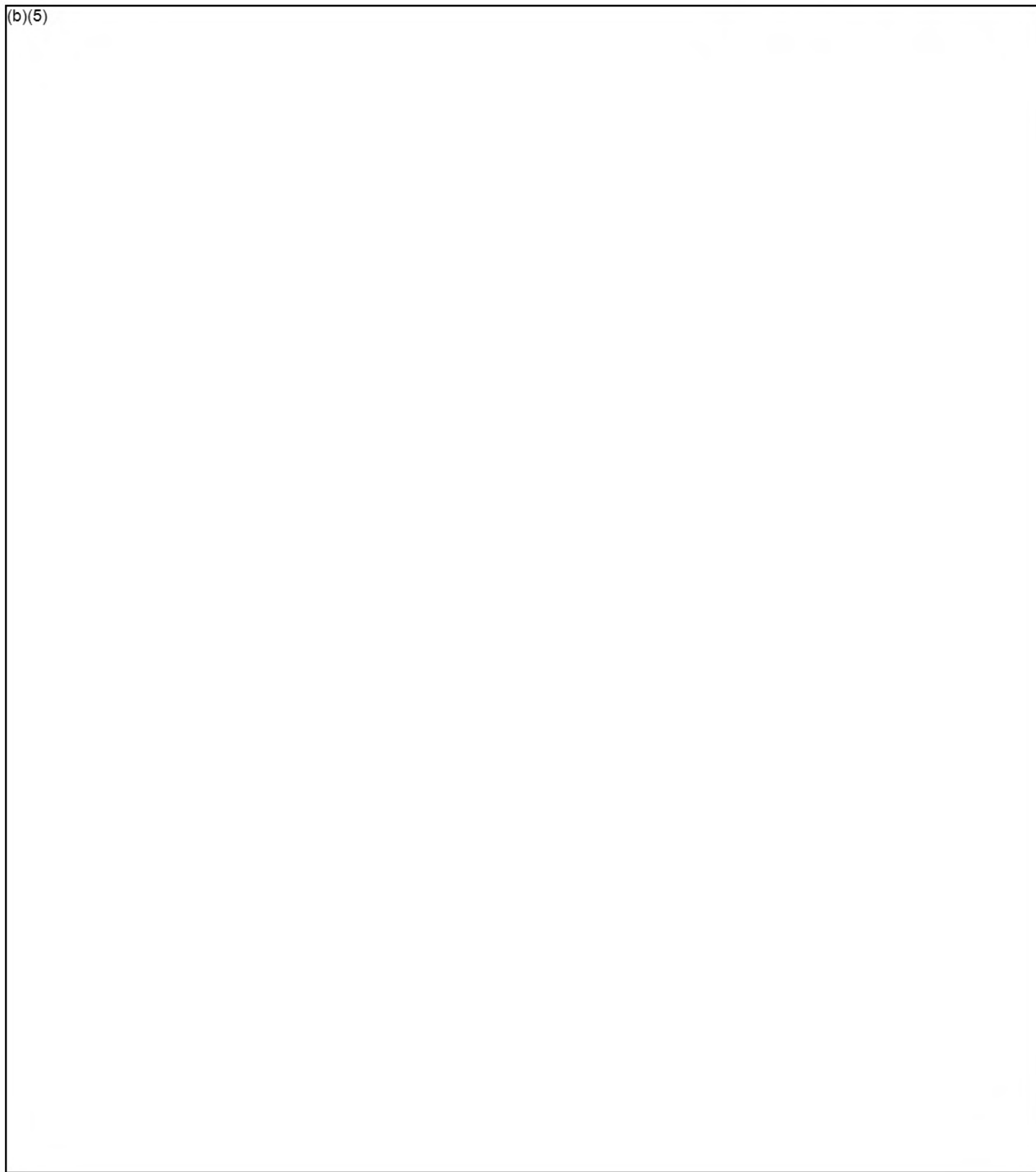
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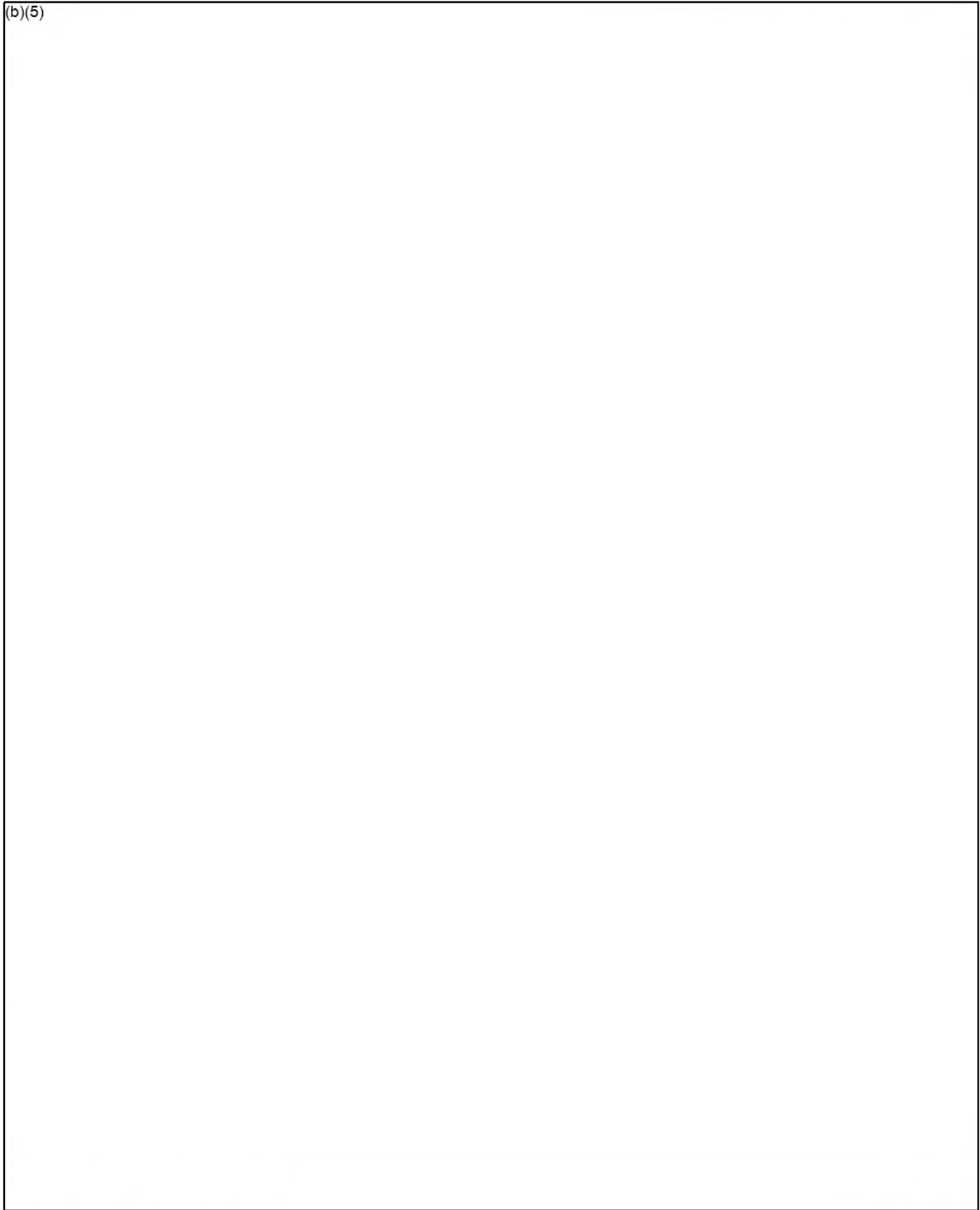
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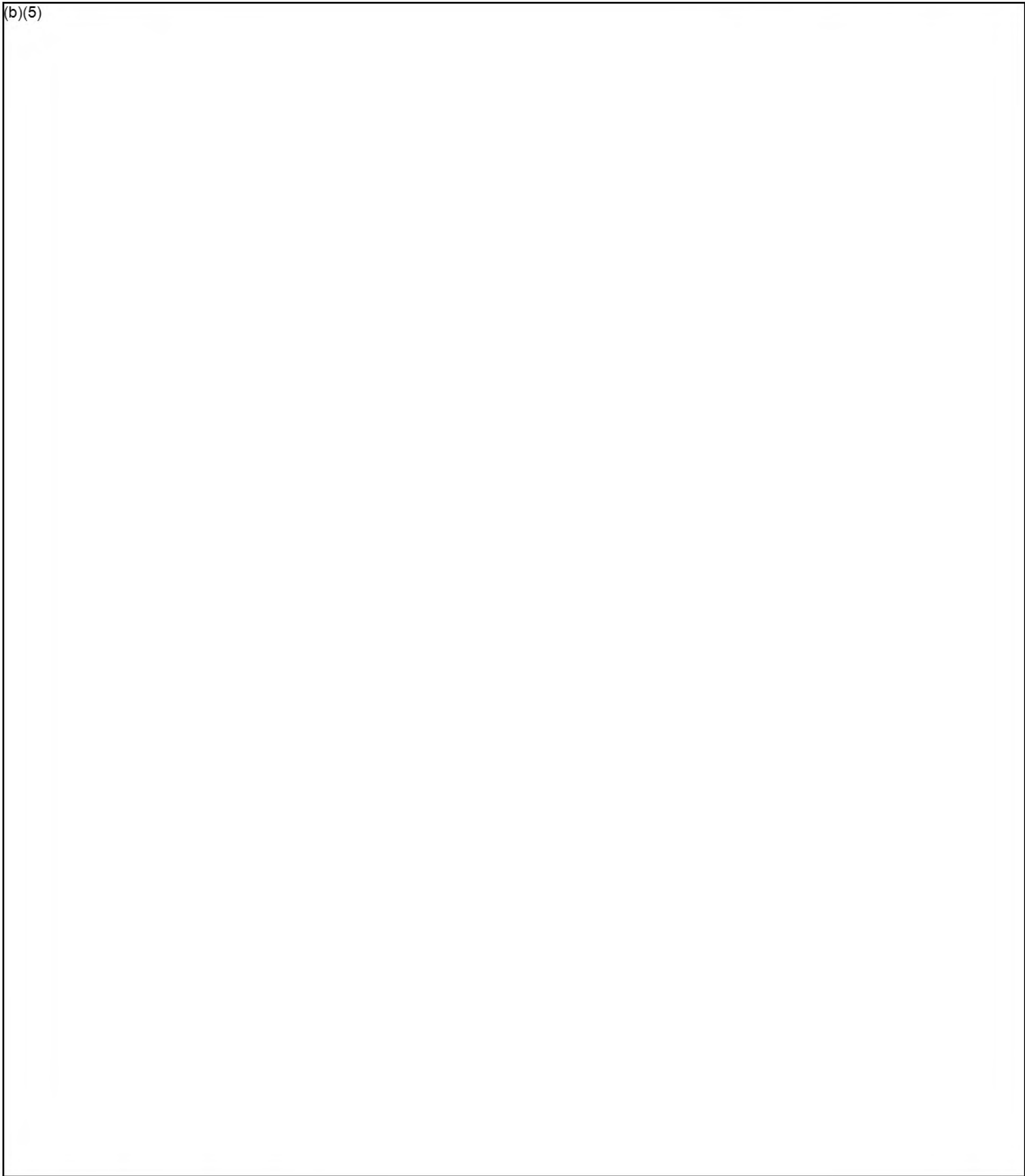


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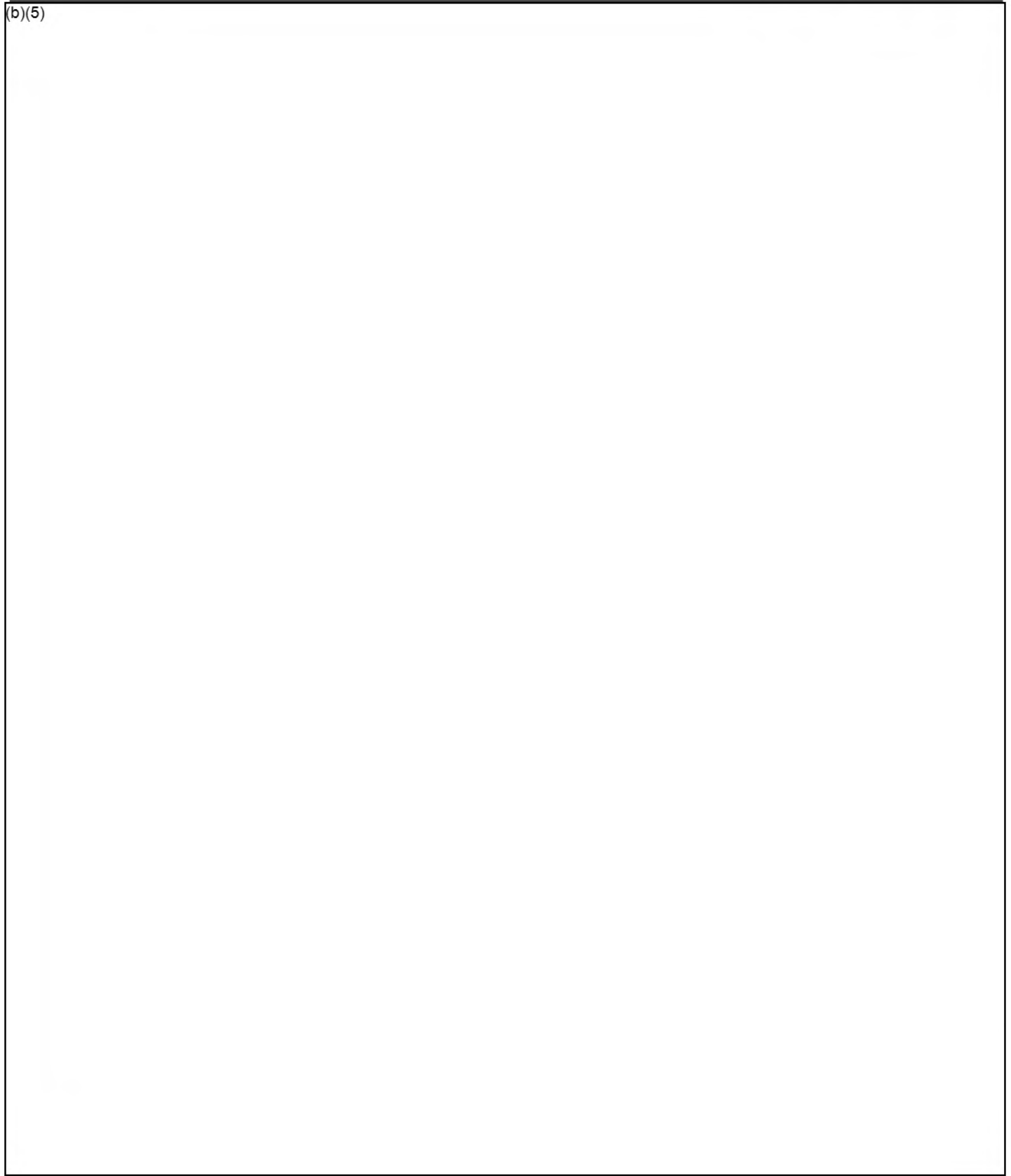
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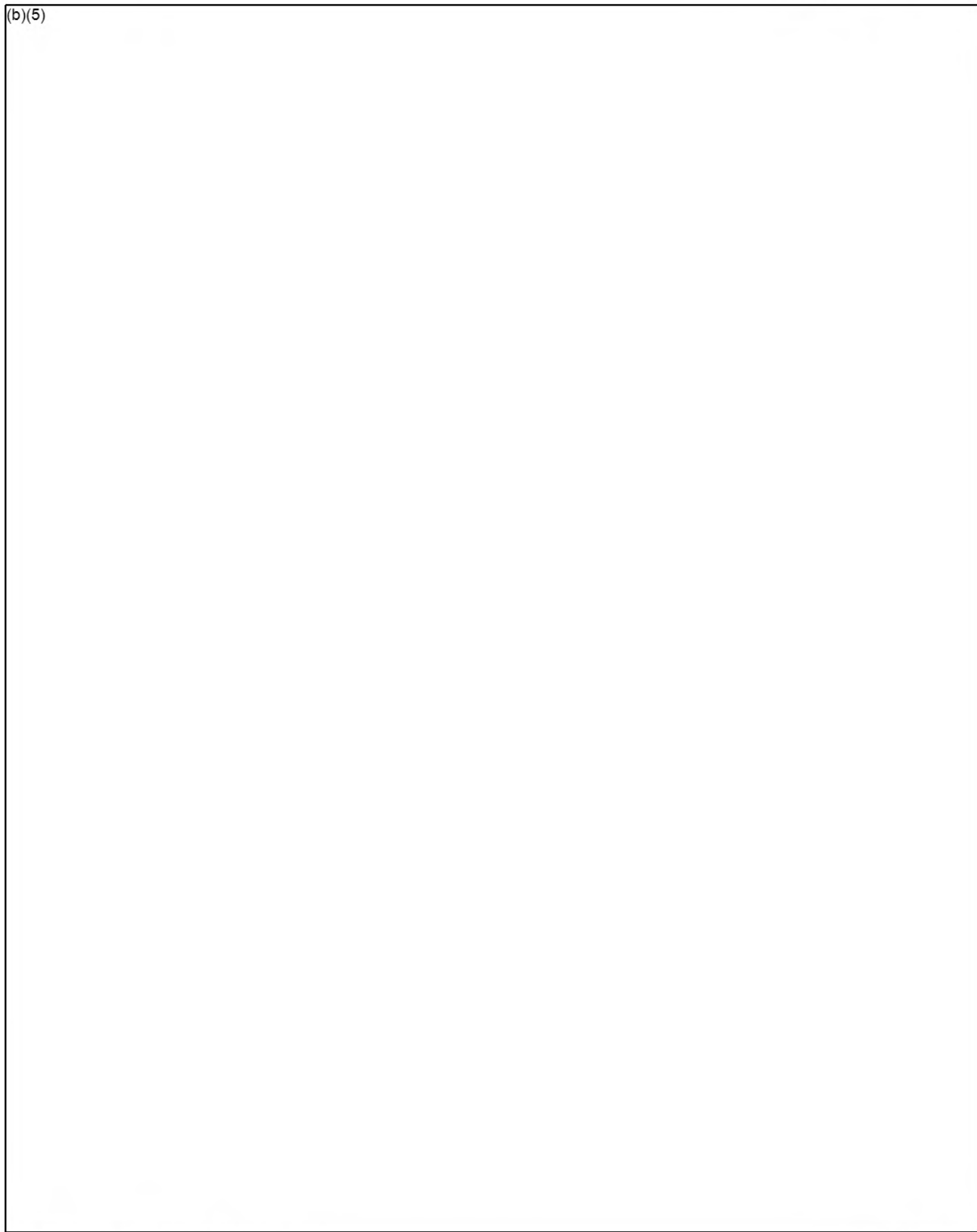
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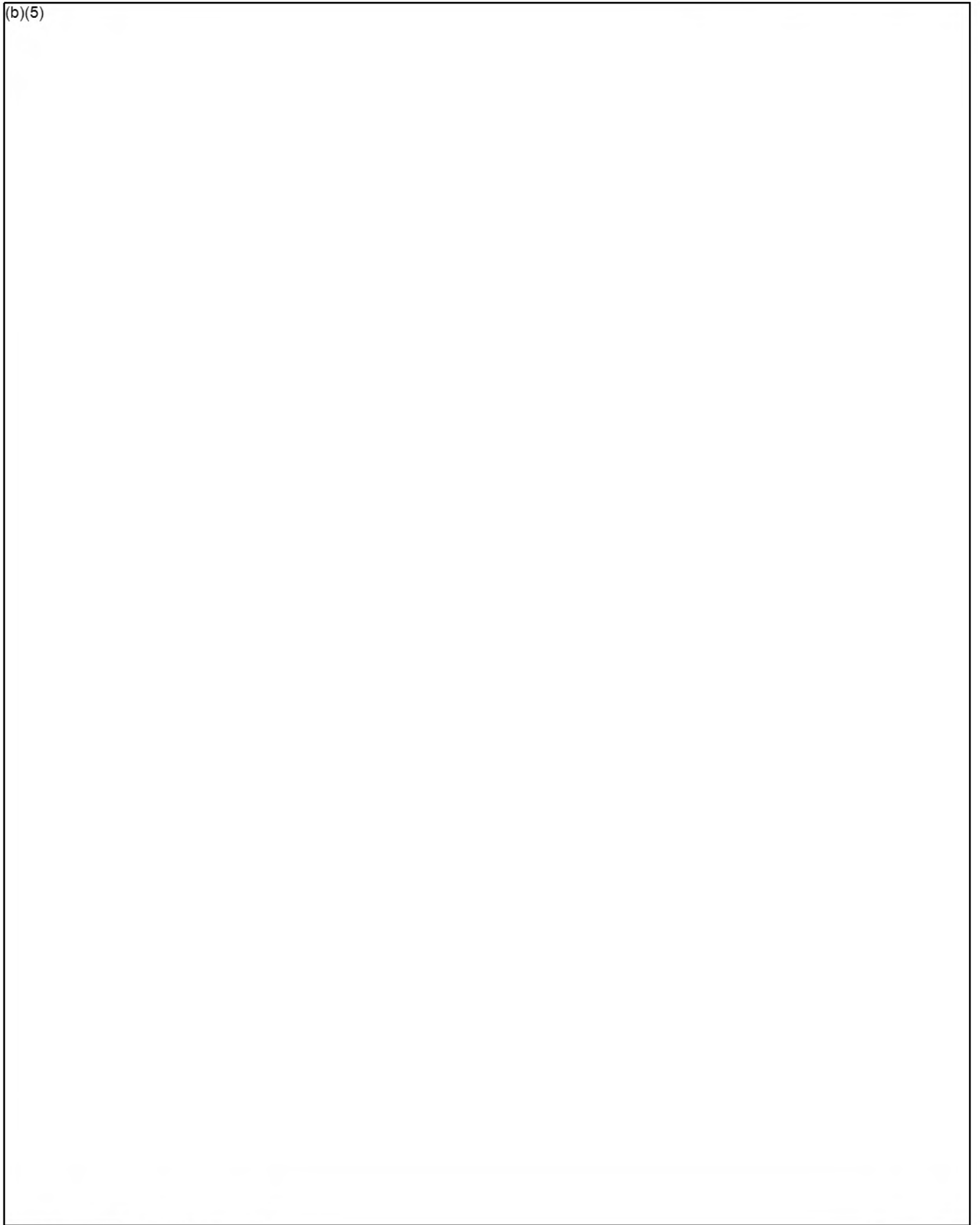
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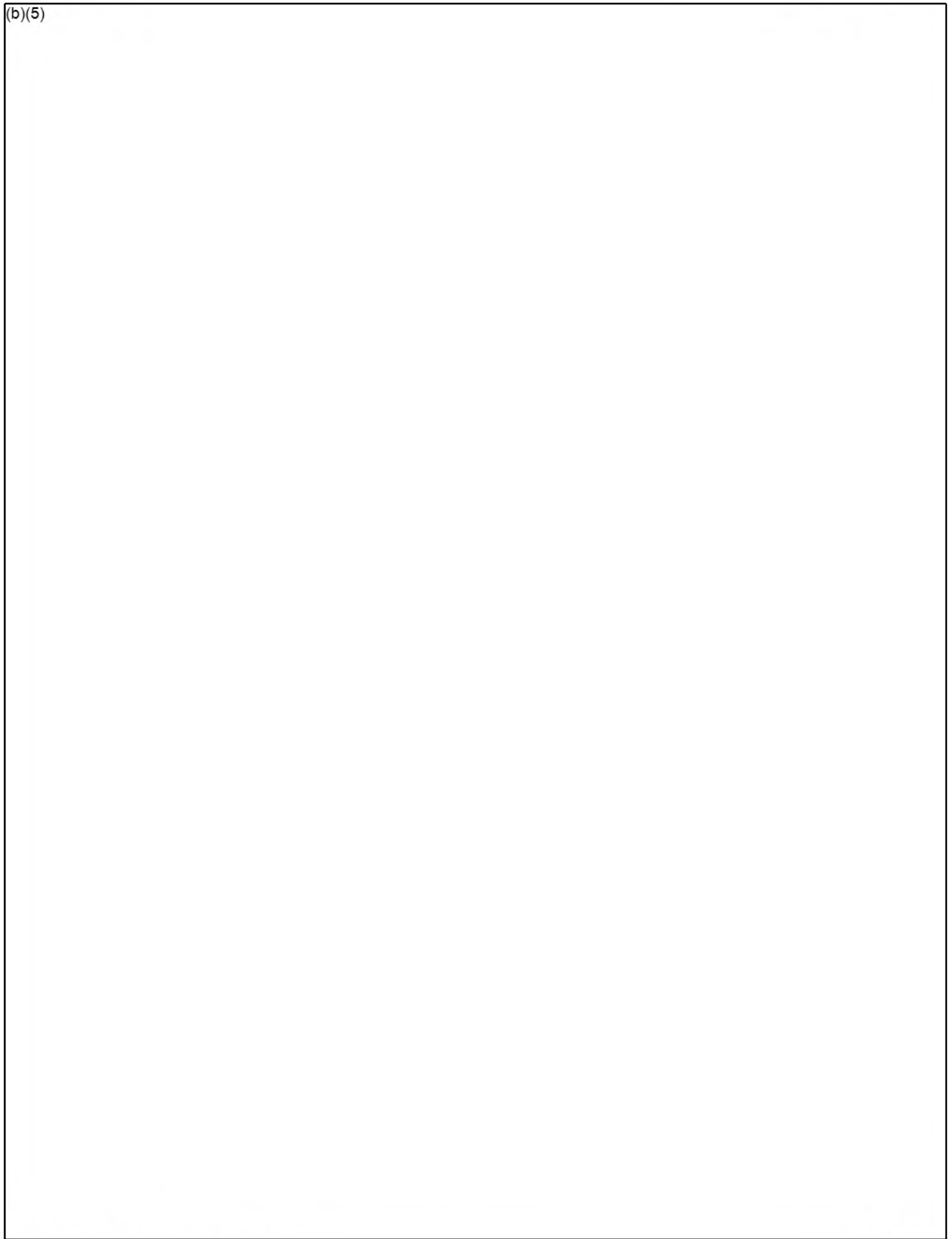


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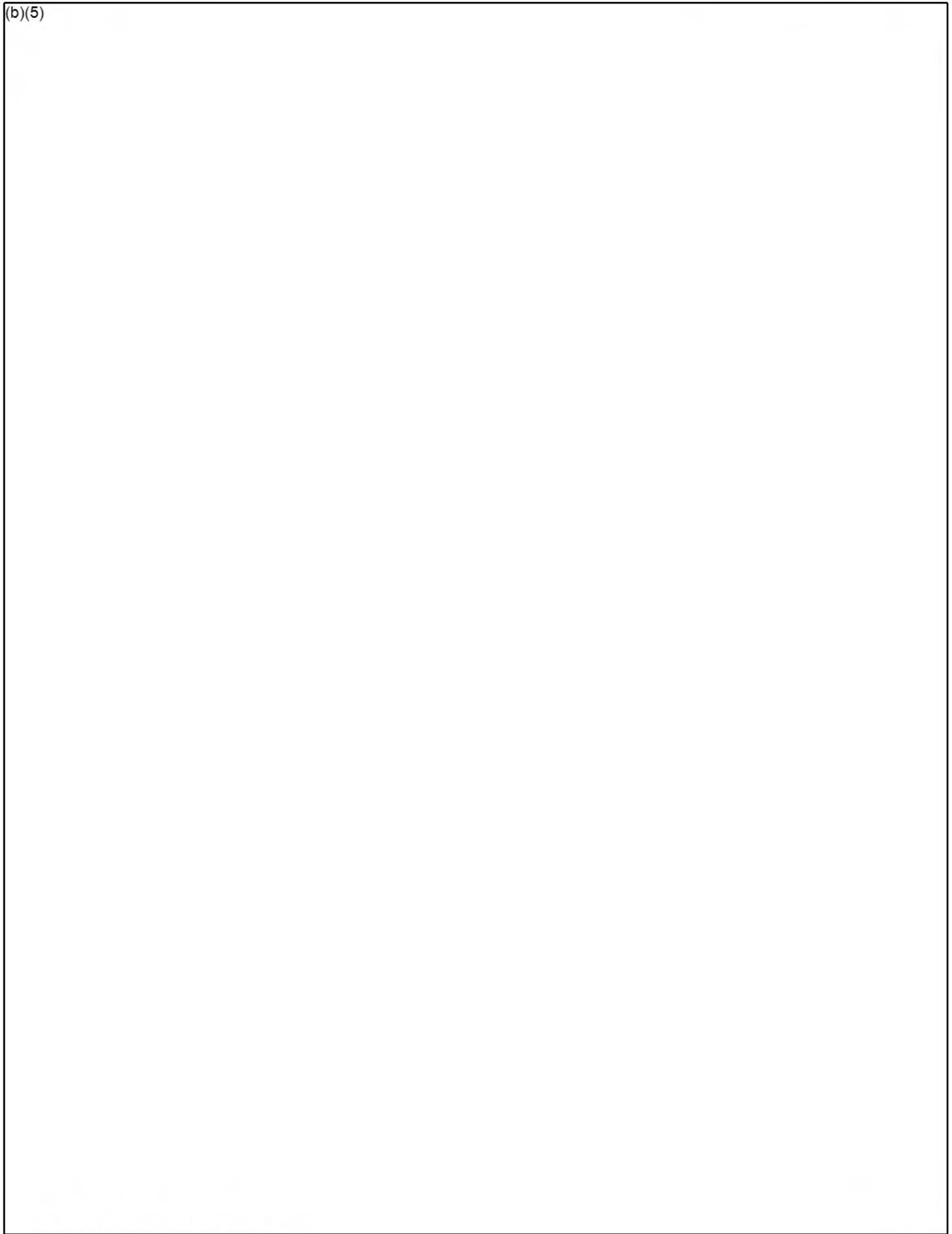
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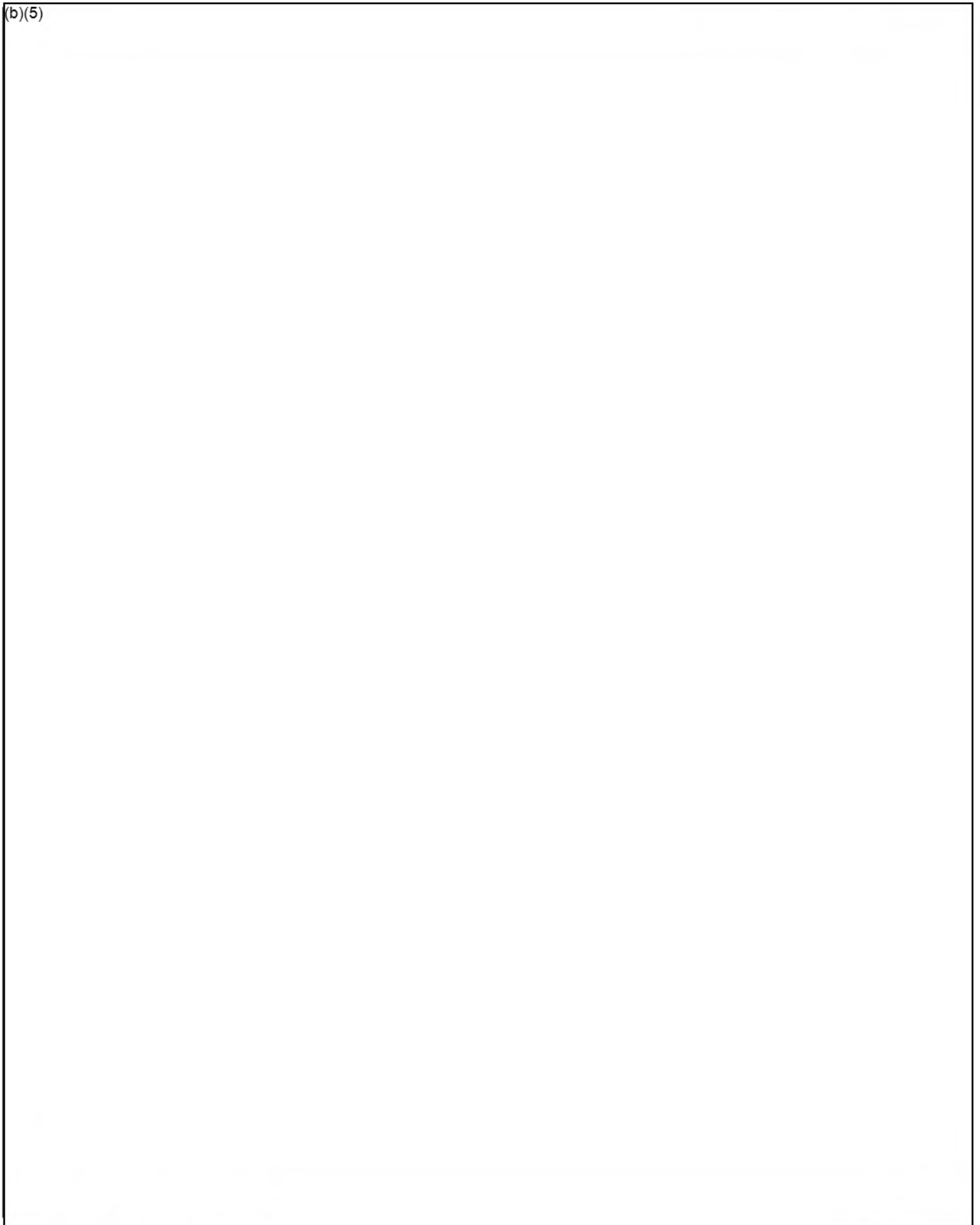
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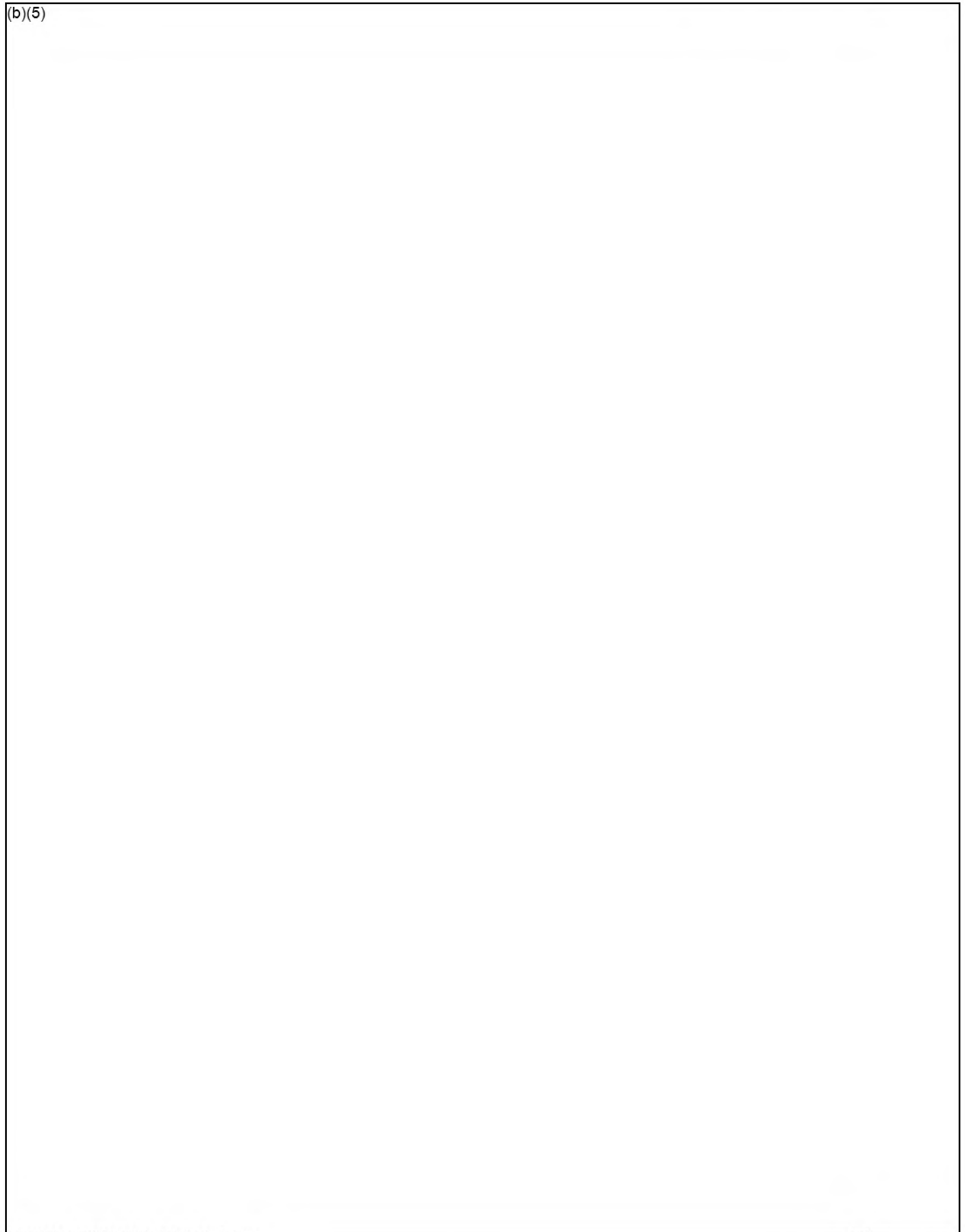
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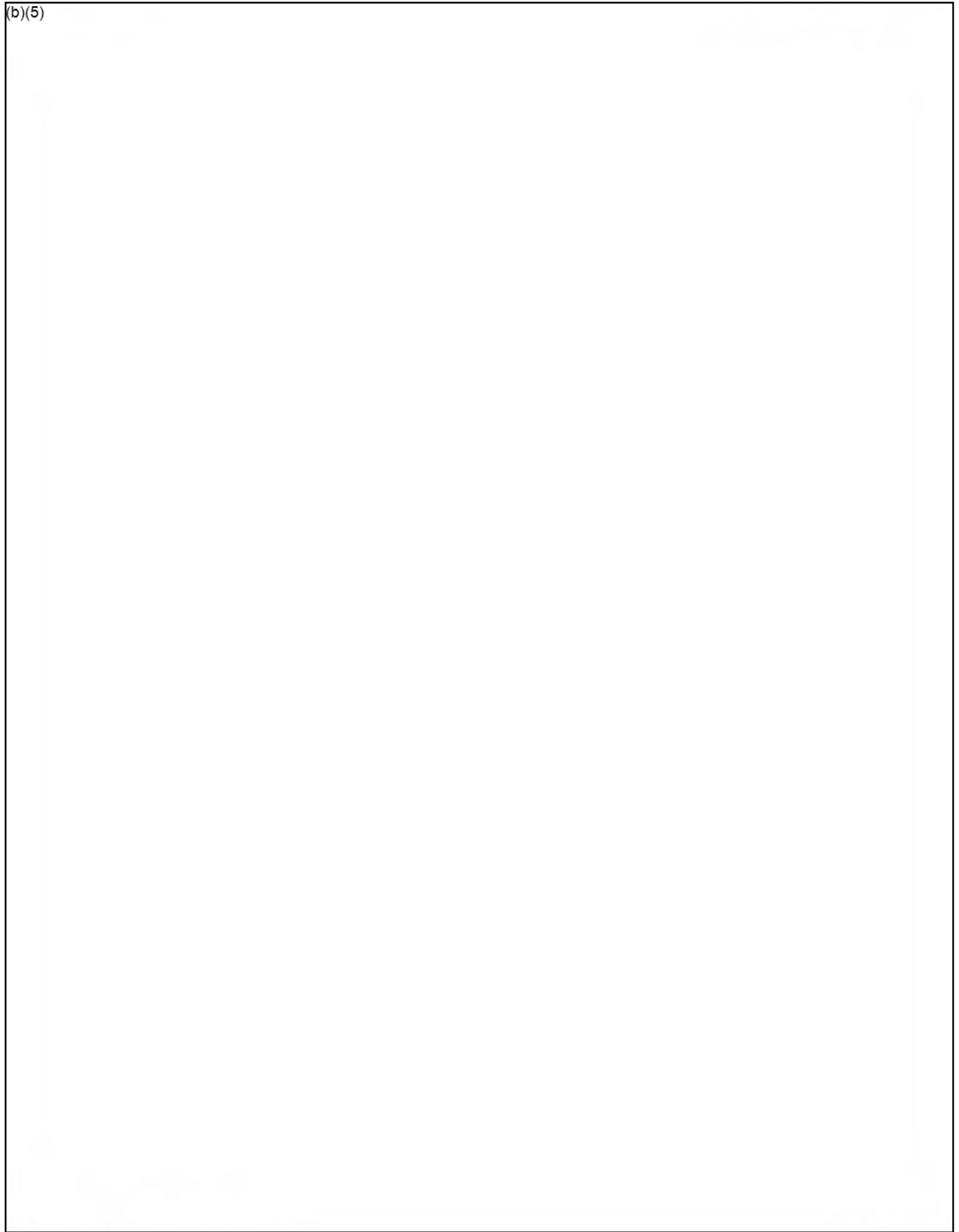
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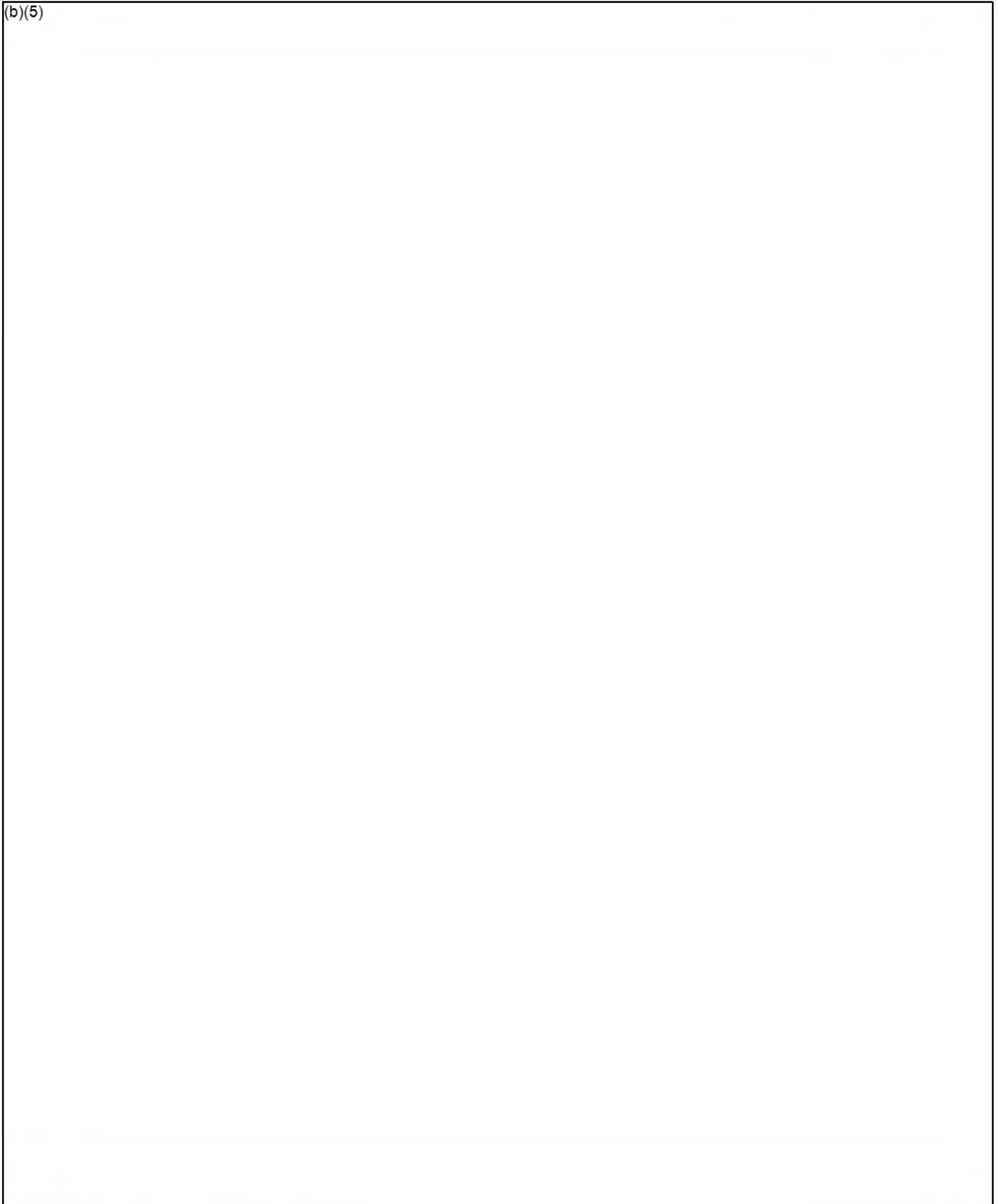
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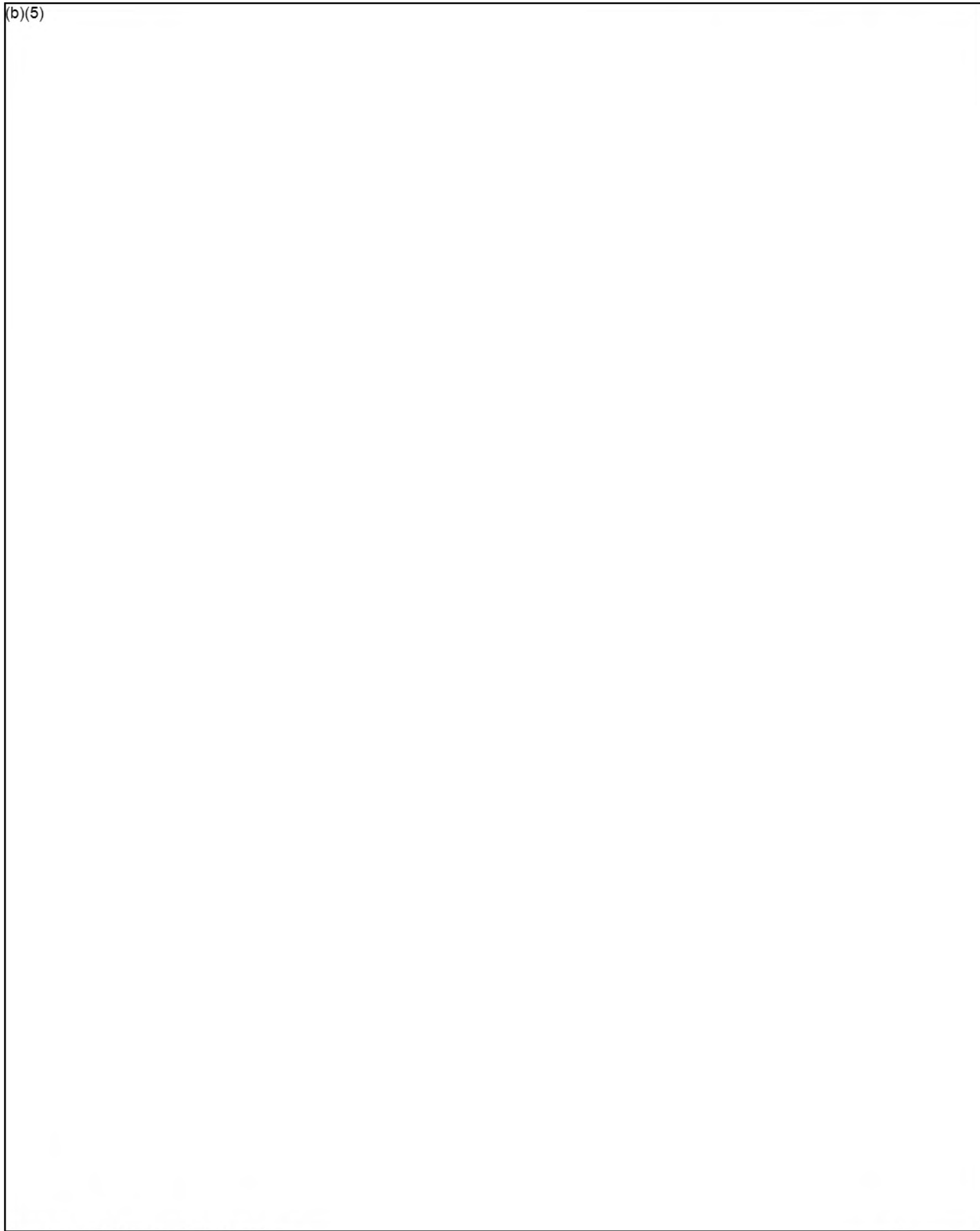
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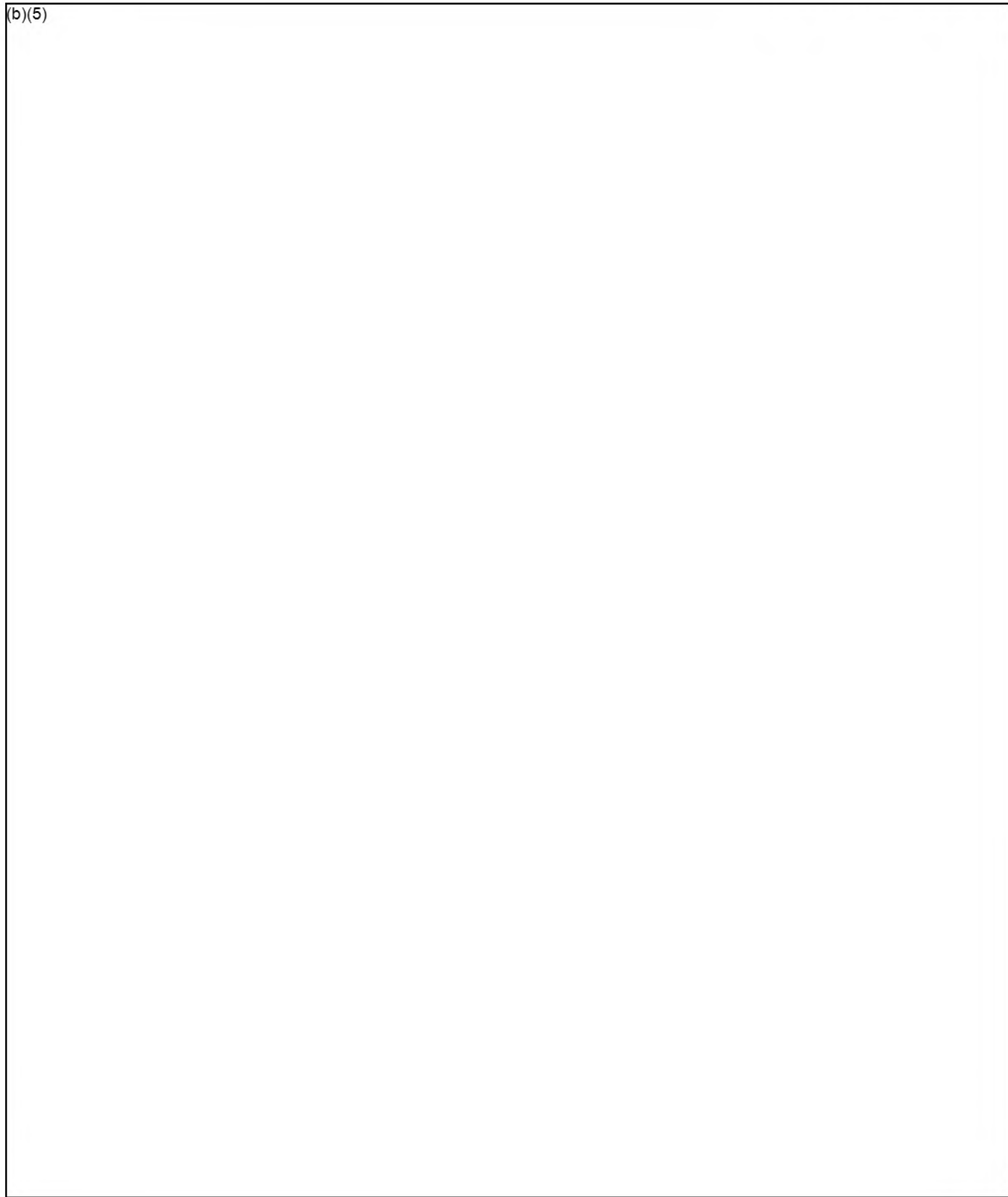
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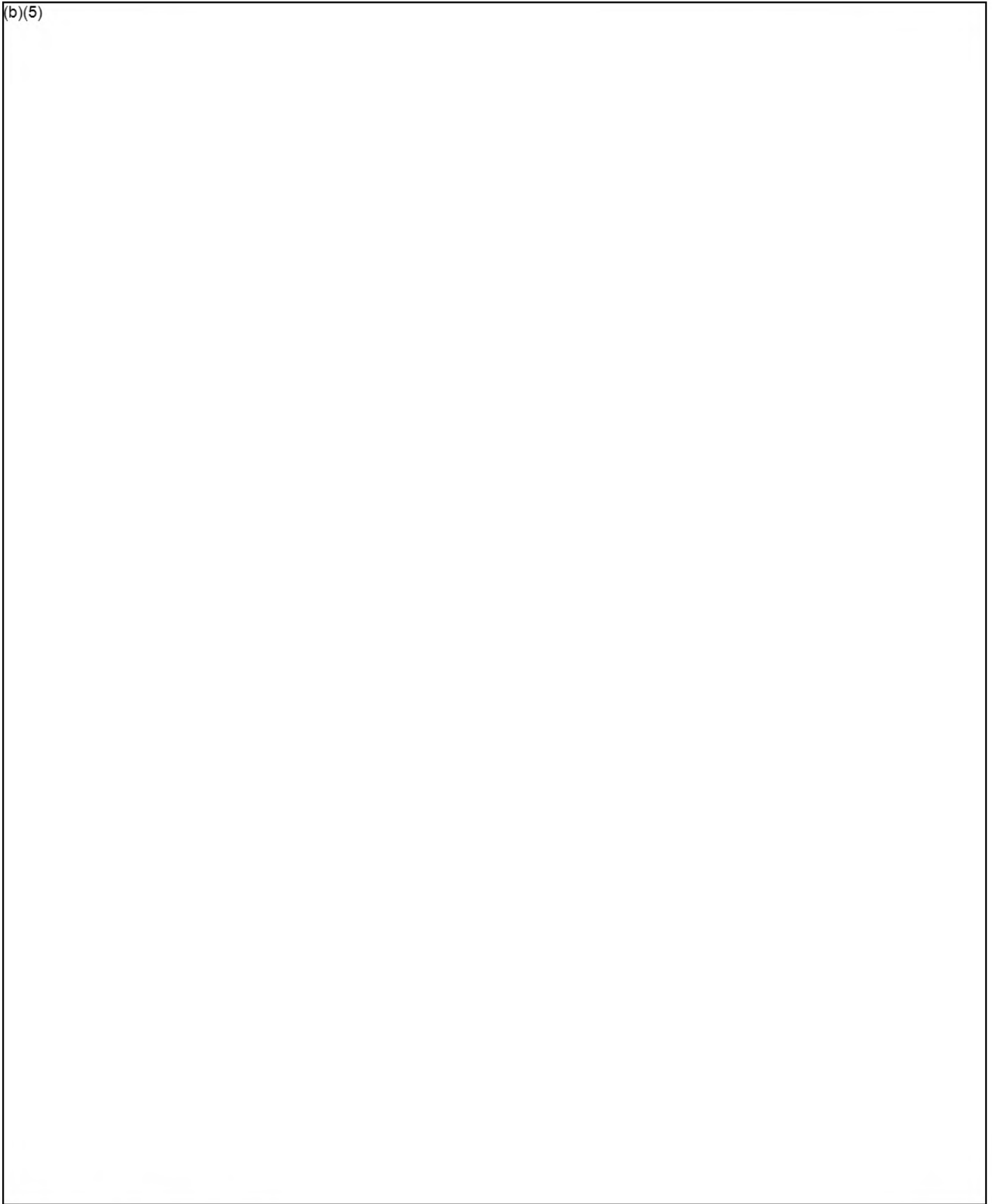
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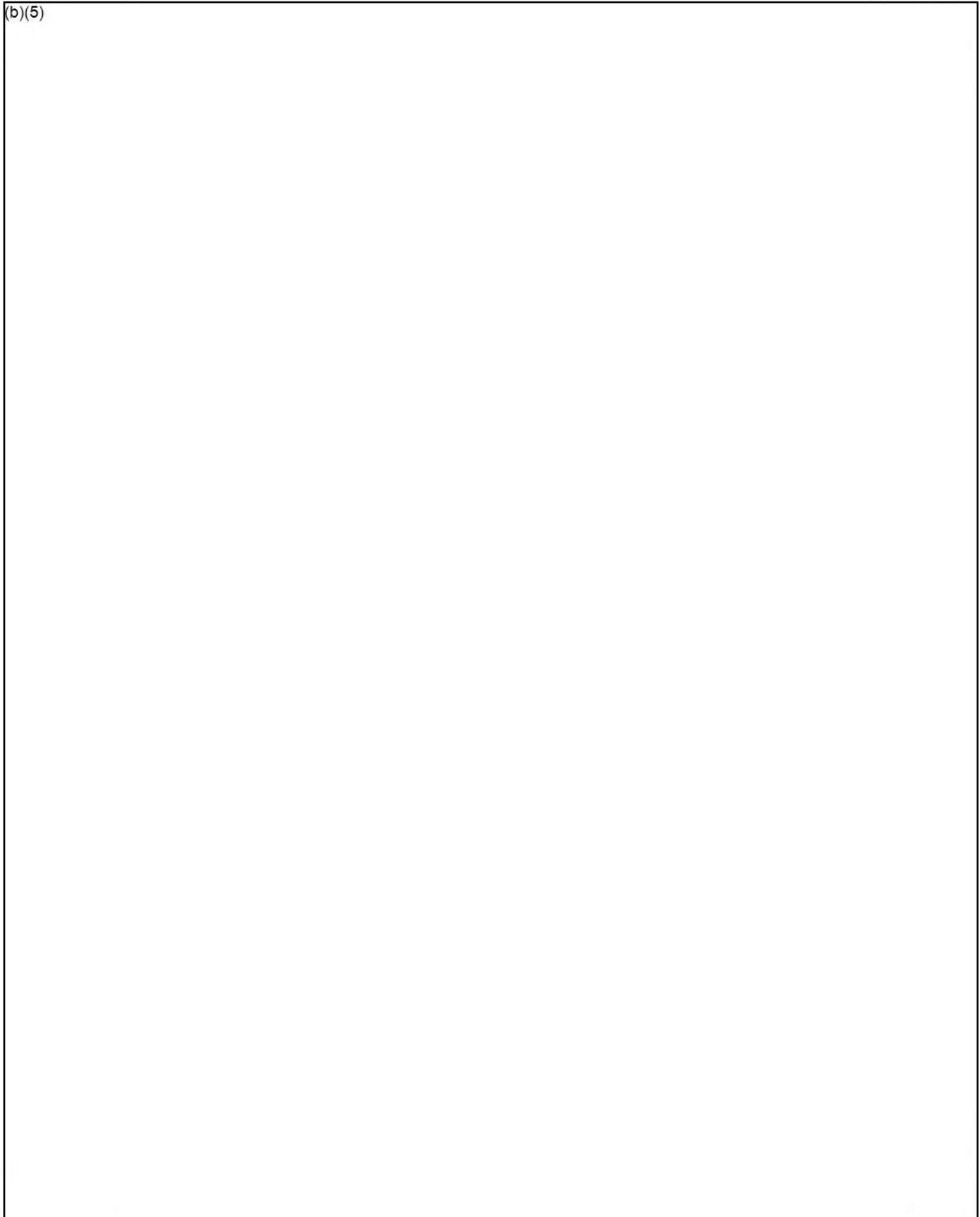


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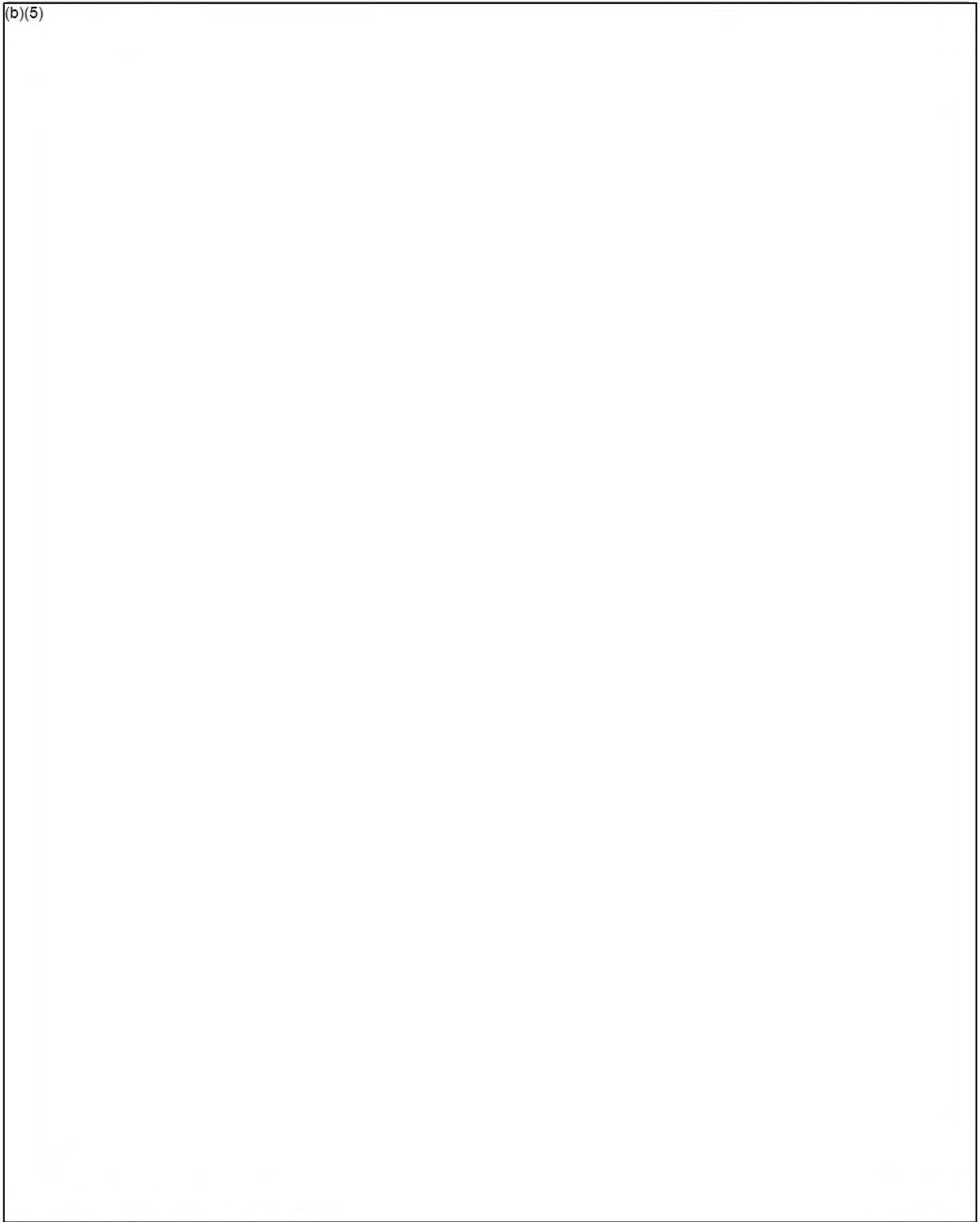
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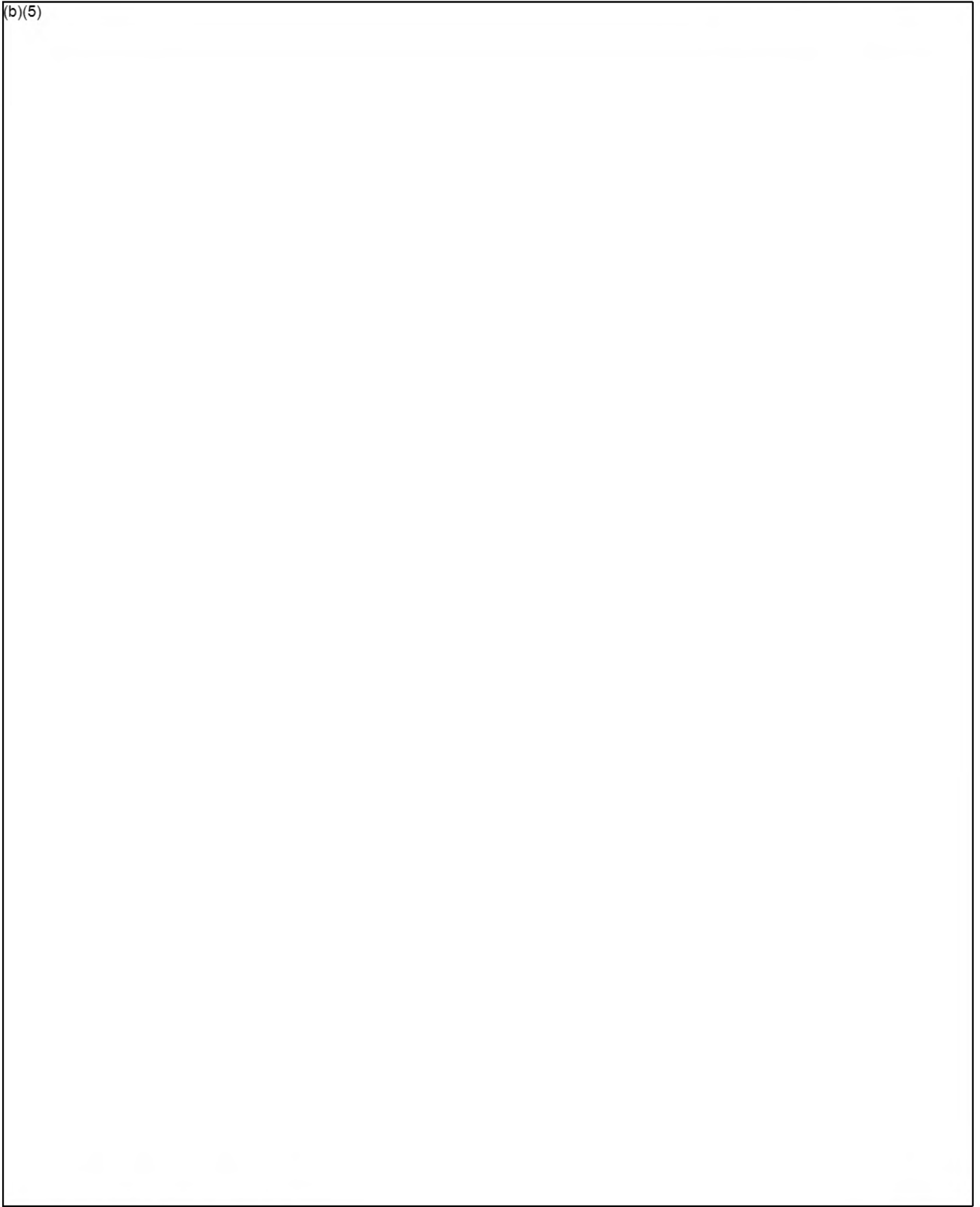
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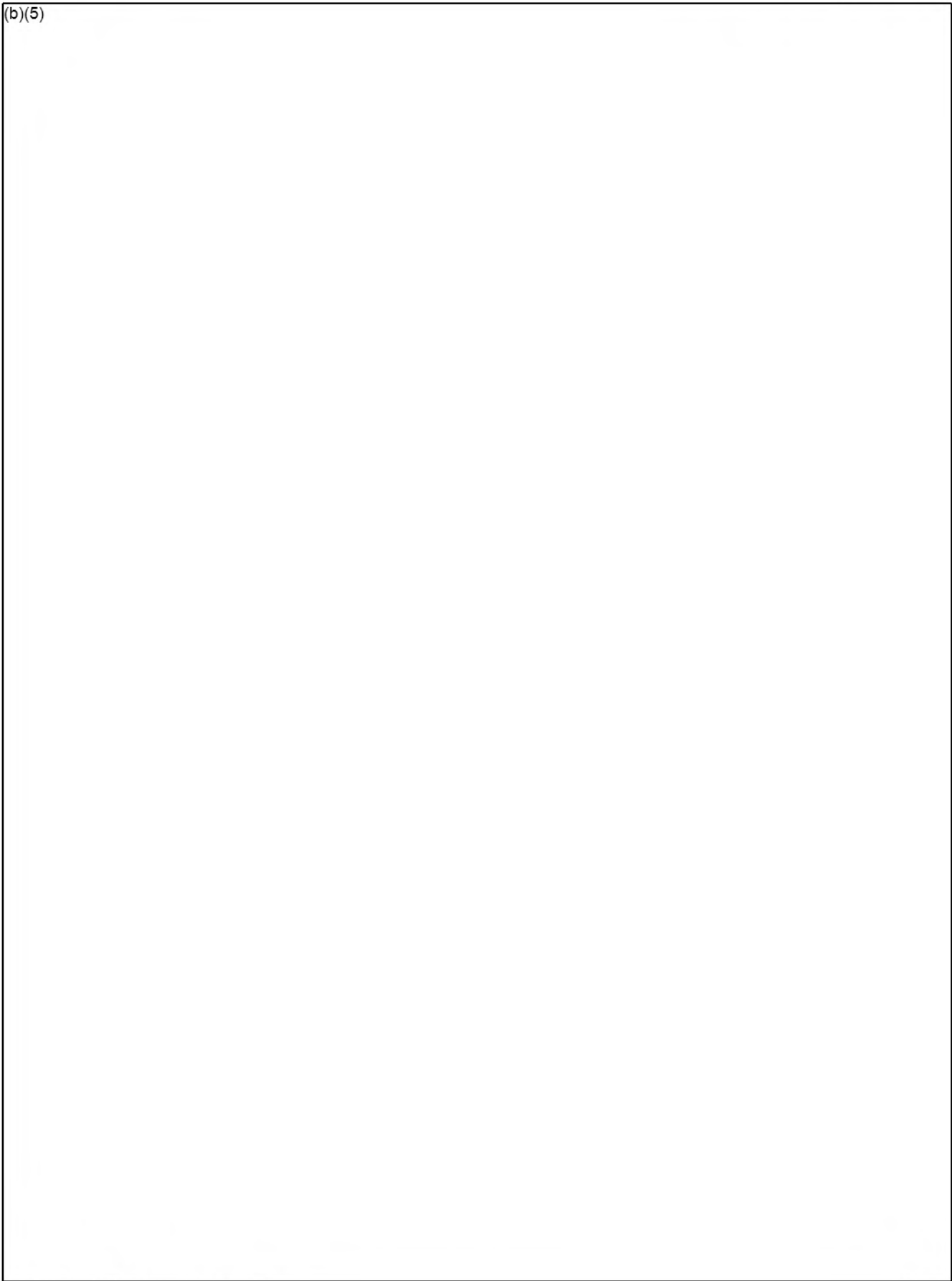
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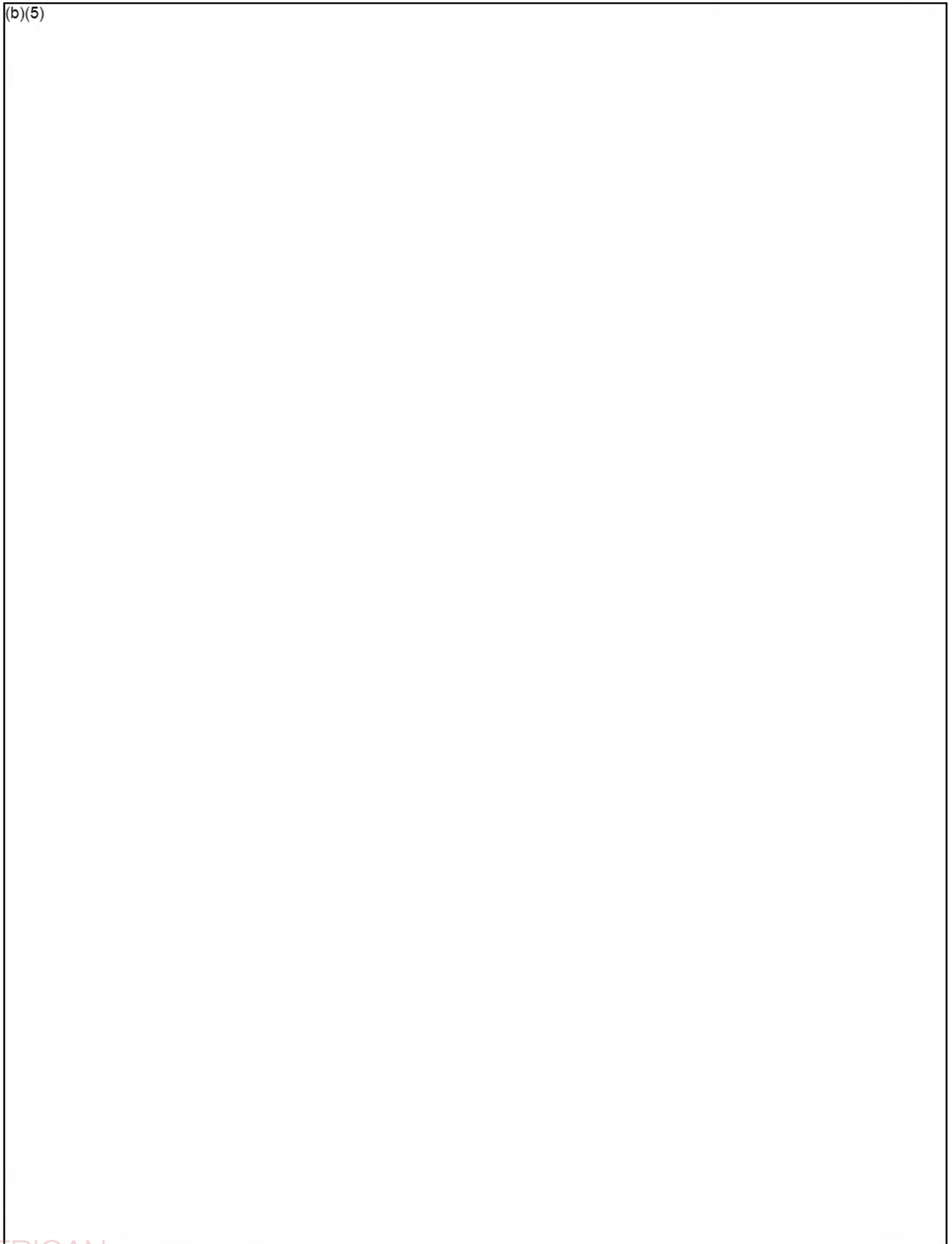
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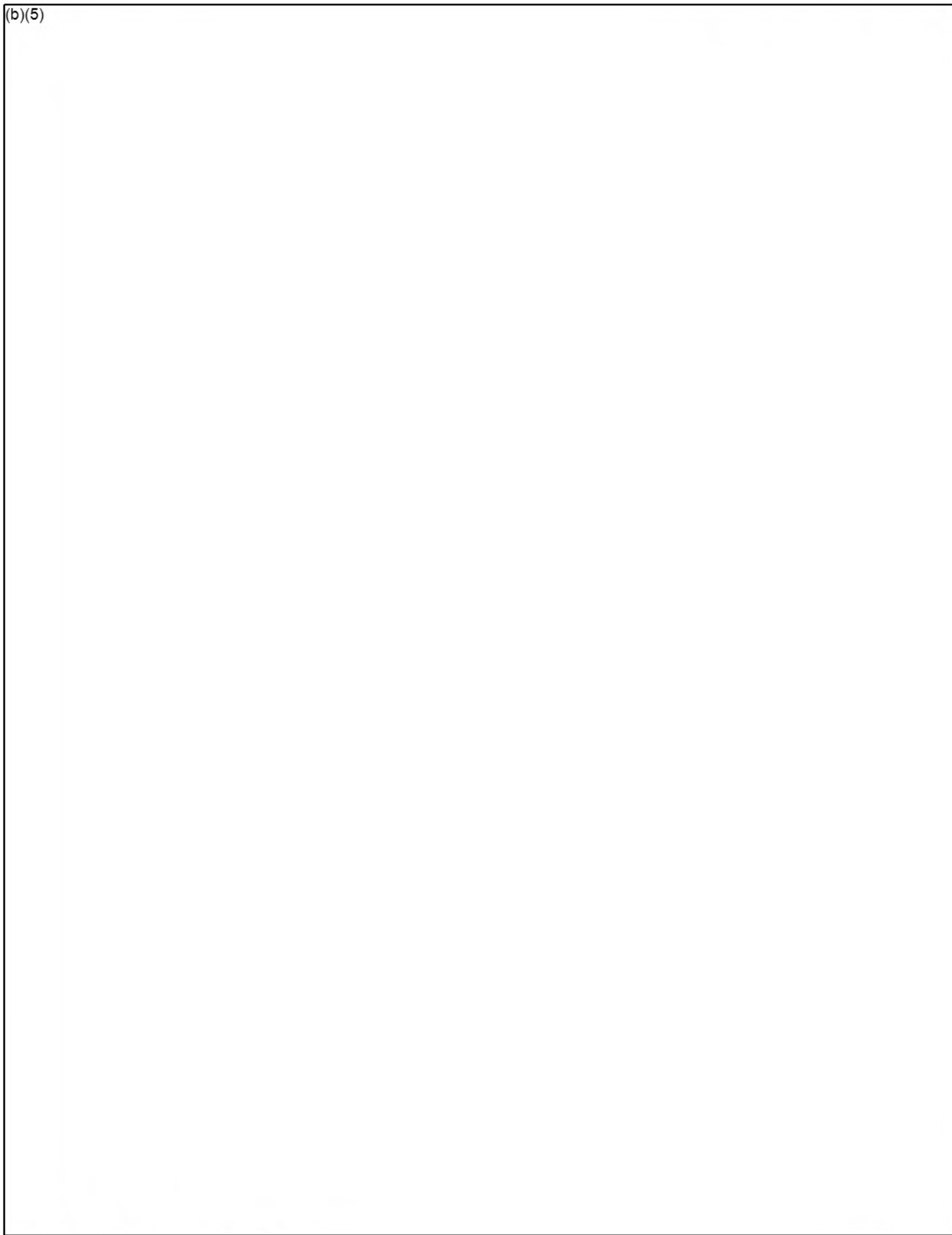
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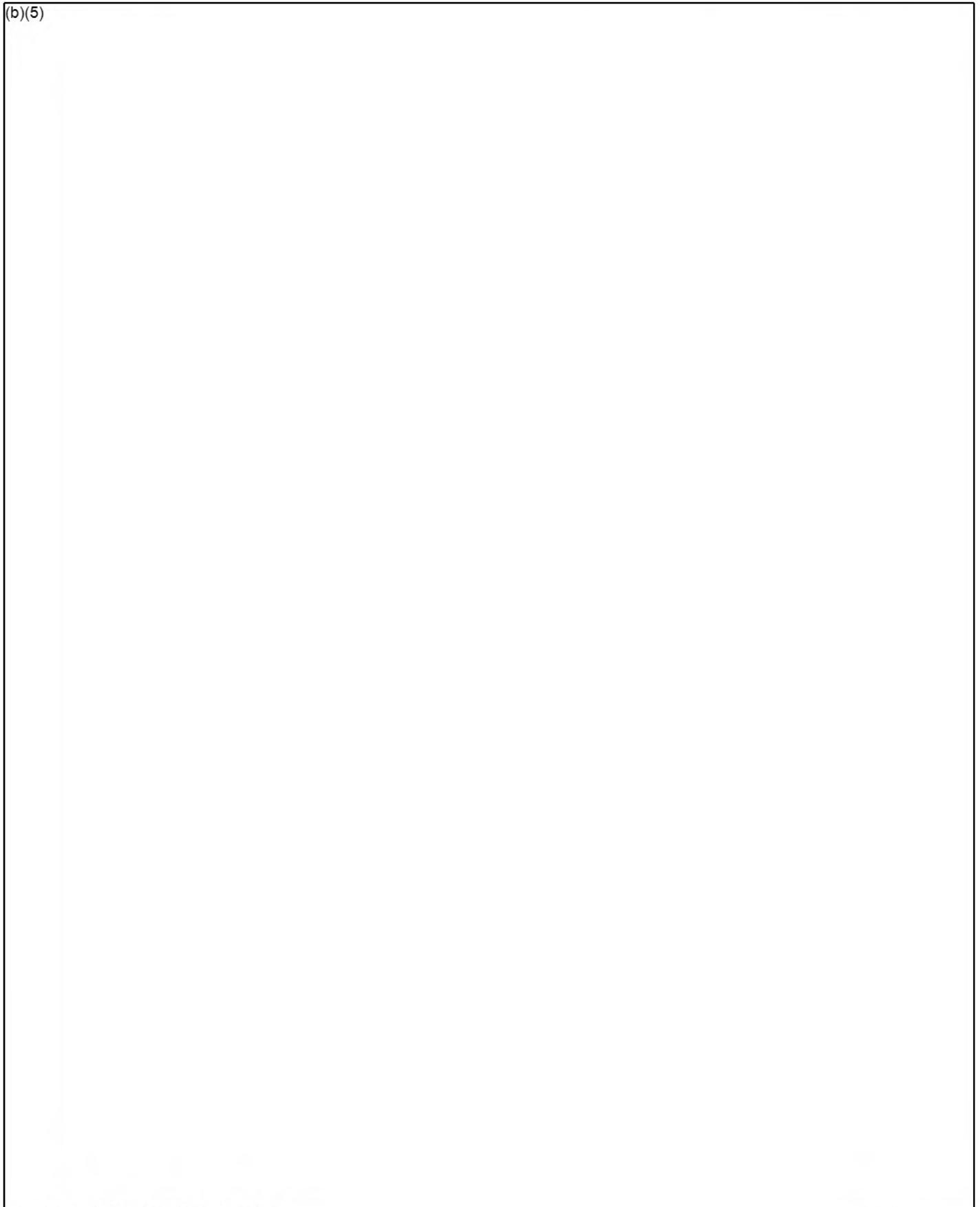


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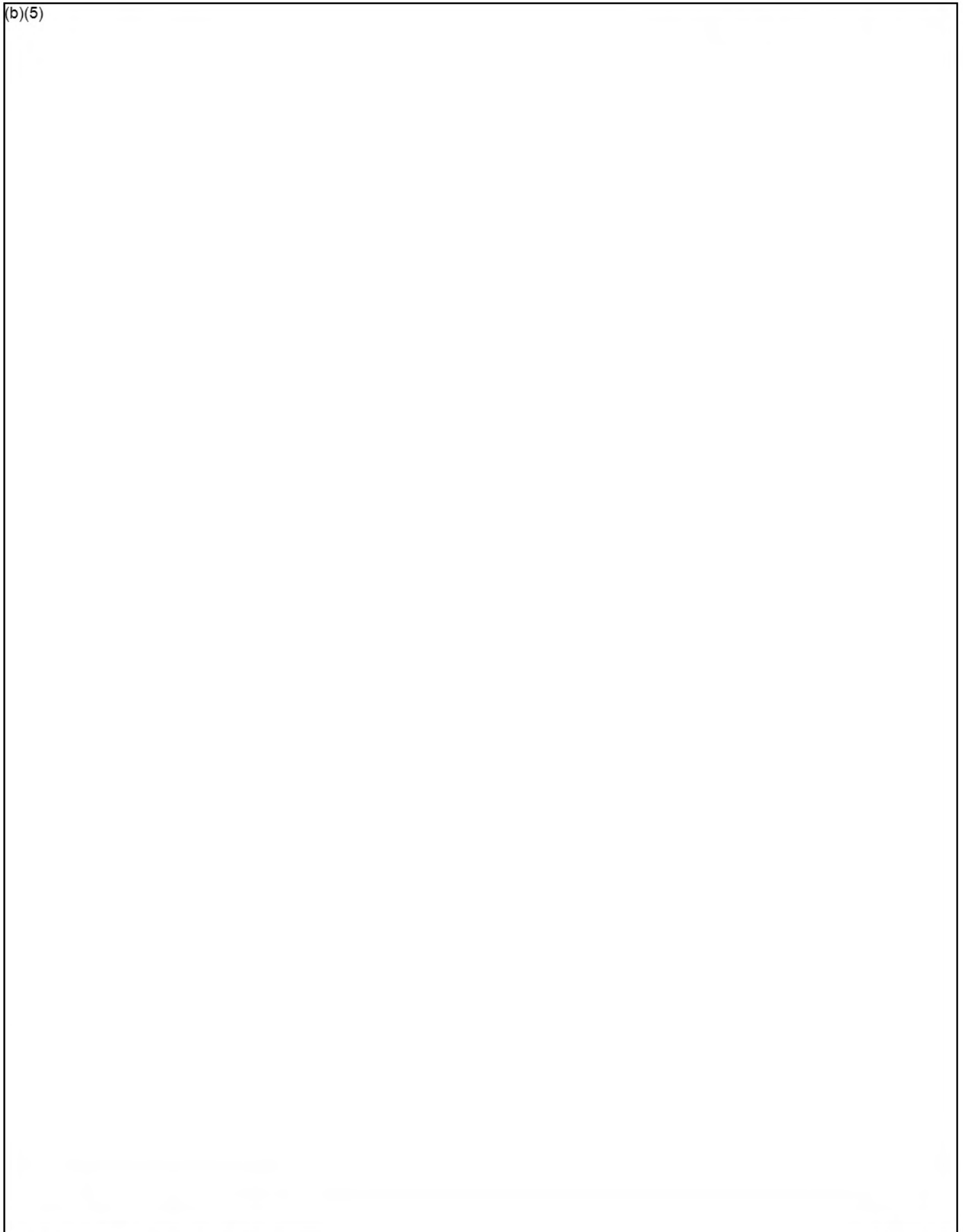
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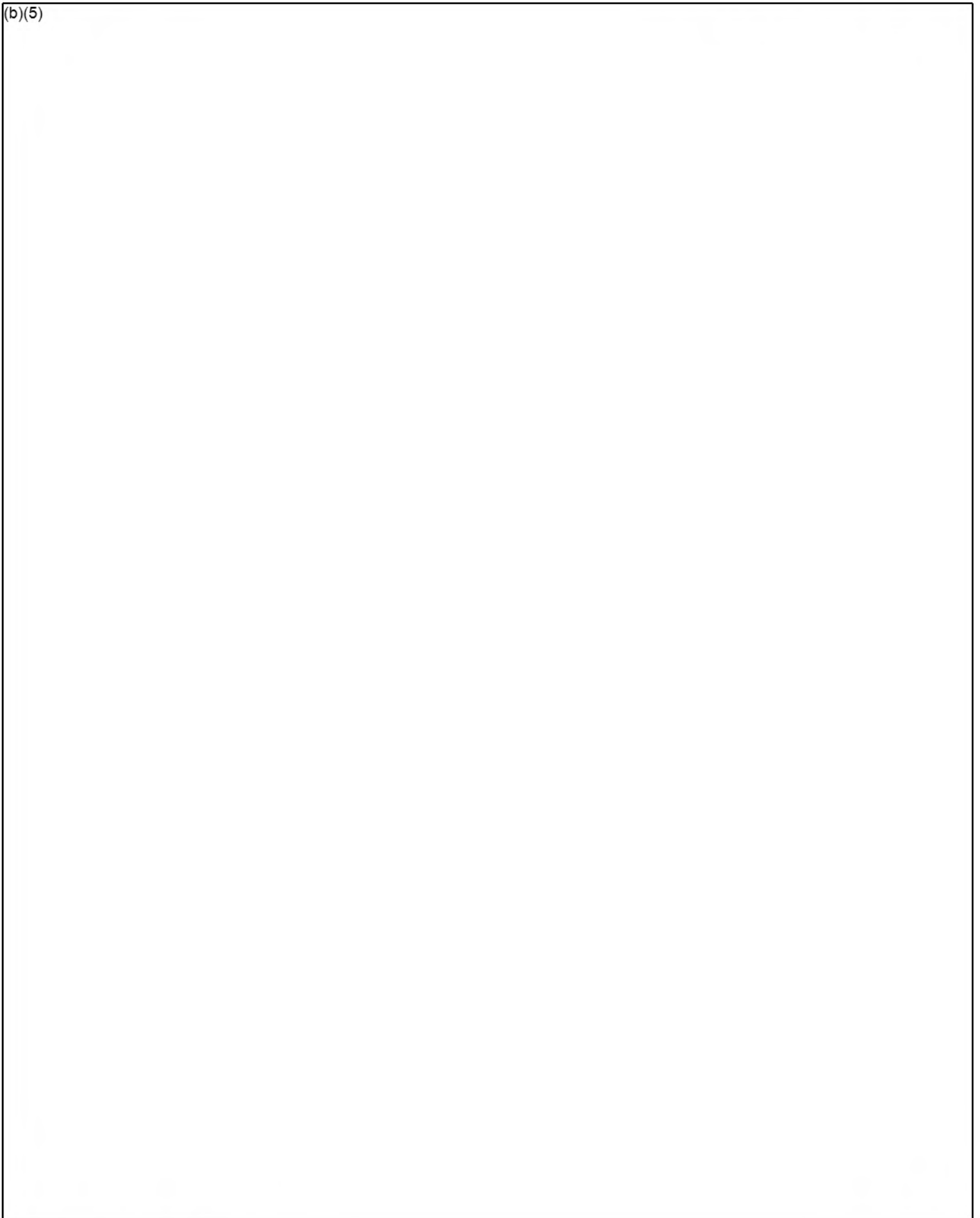
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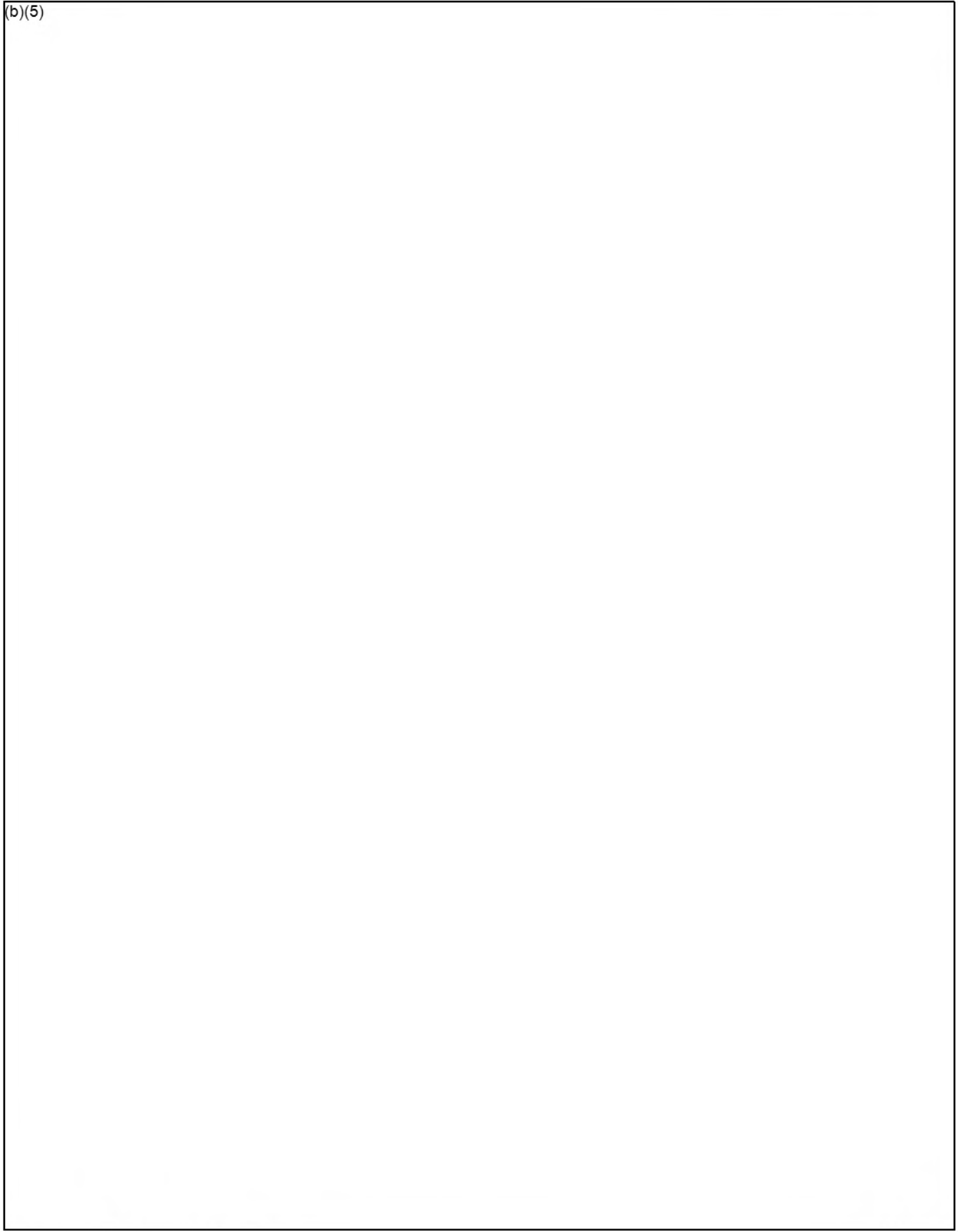
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September 14, 2017

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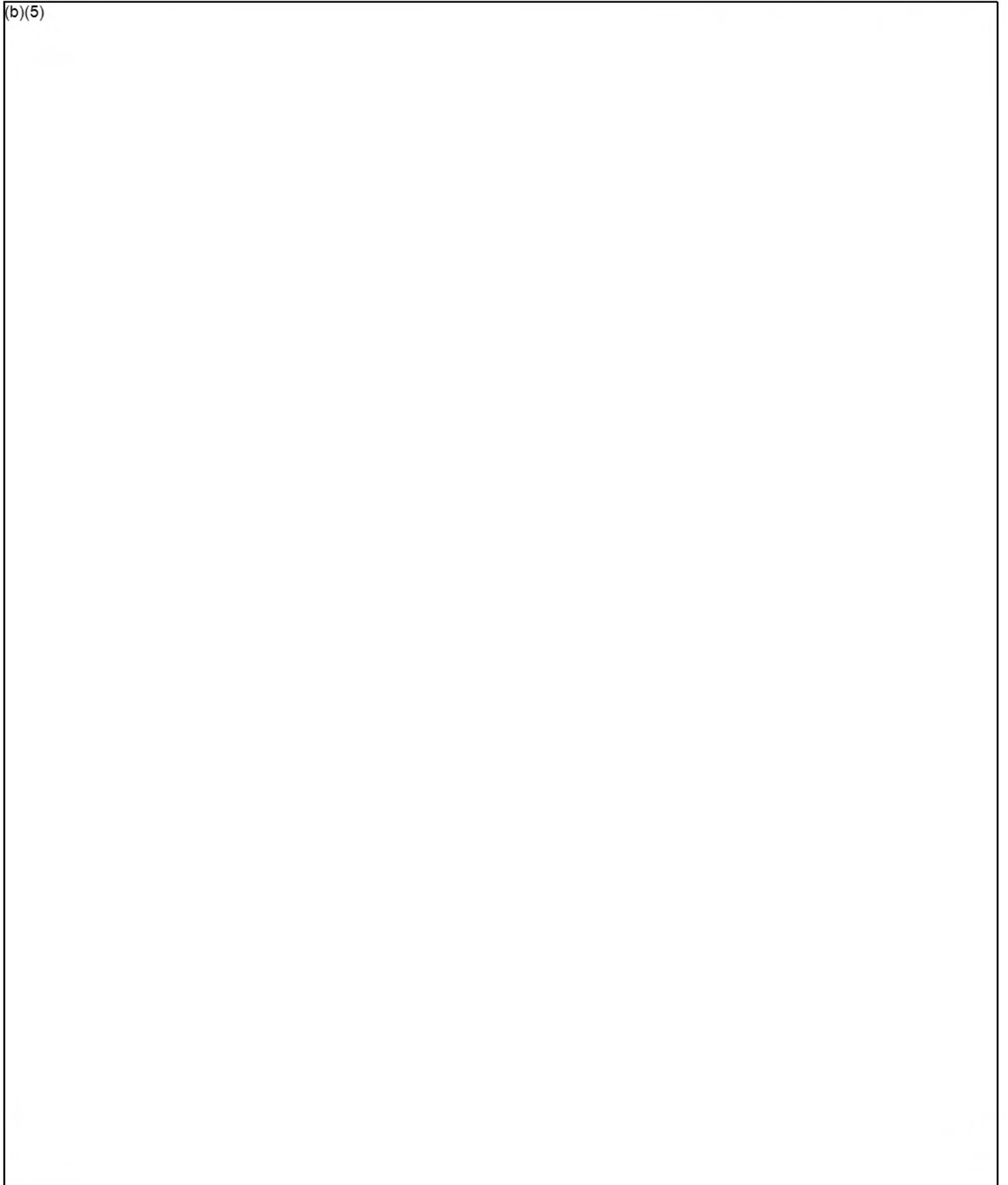
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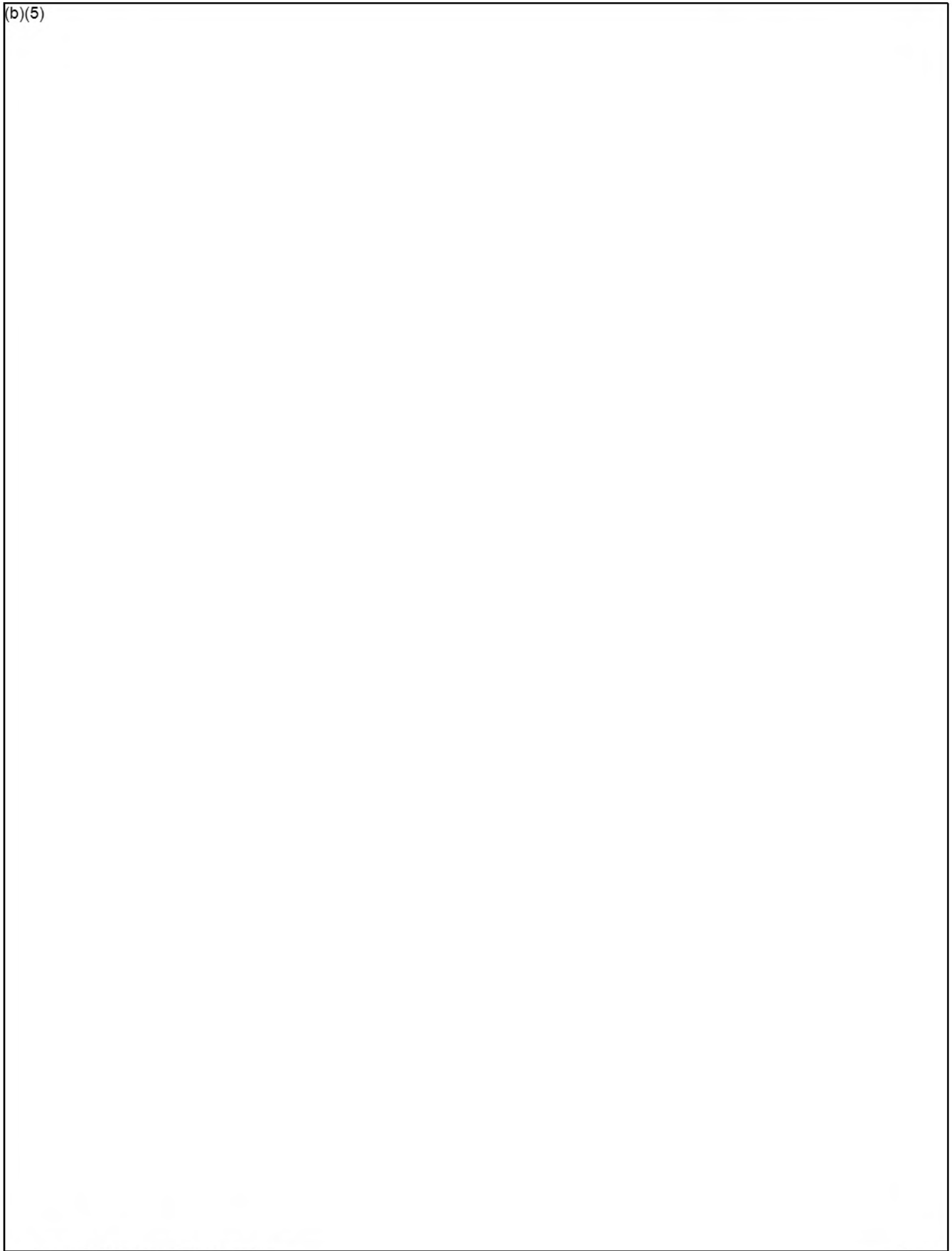
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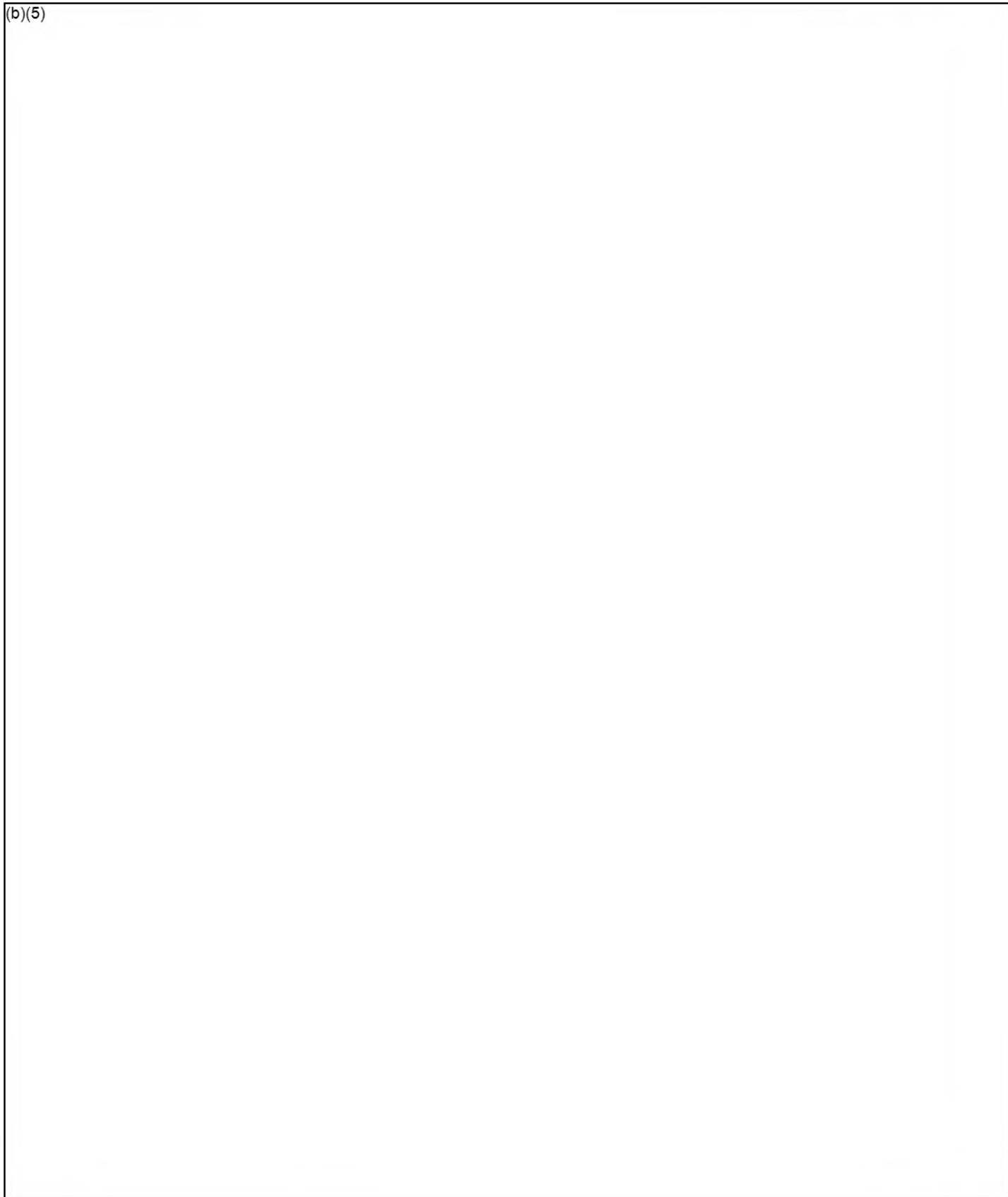
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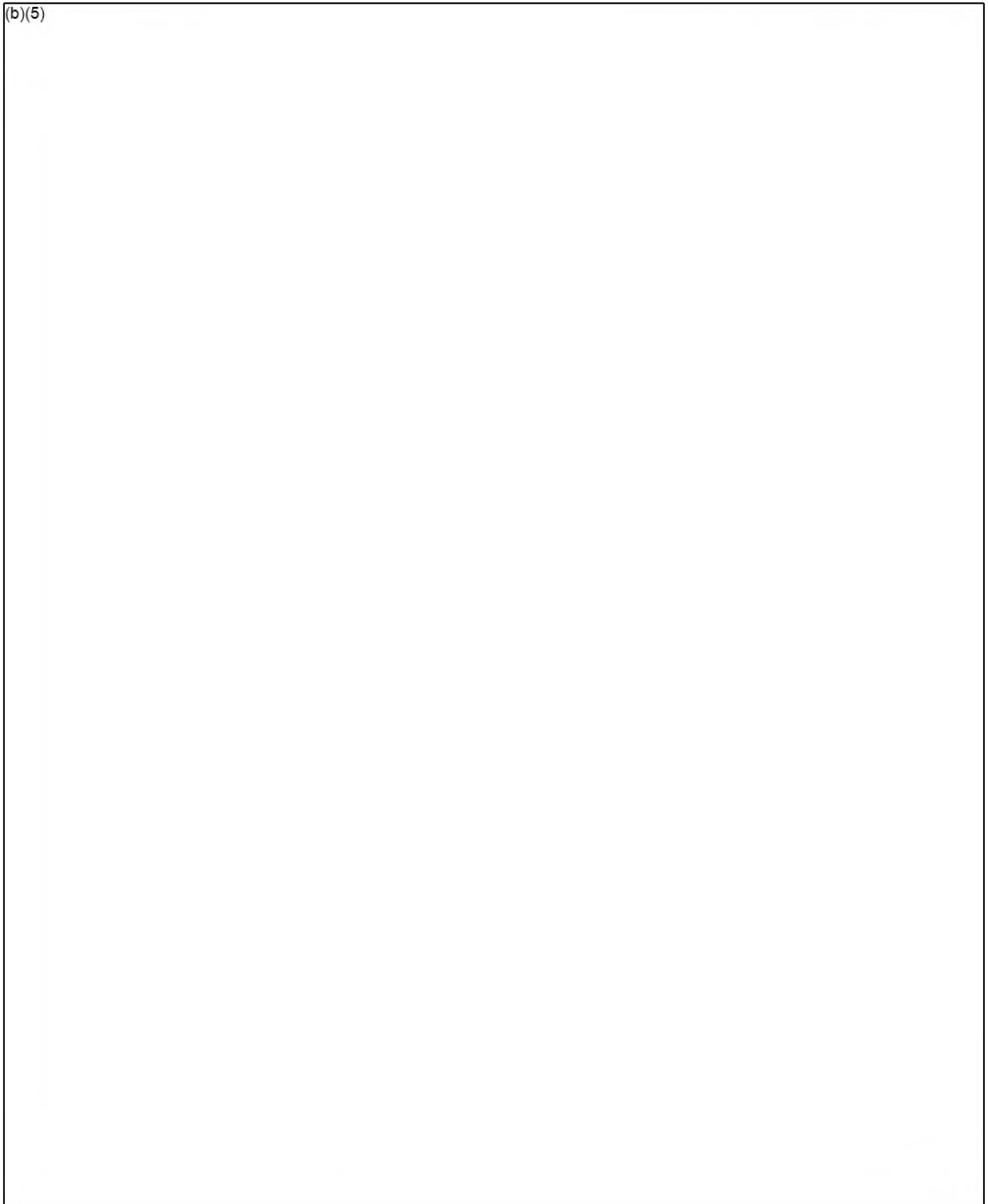
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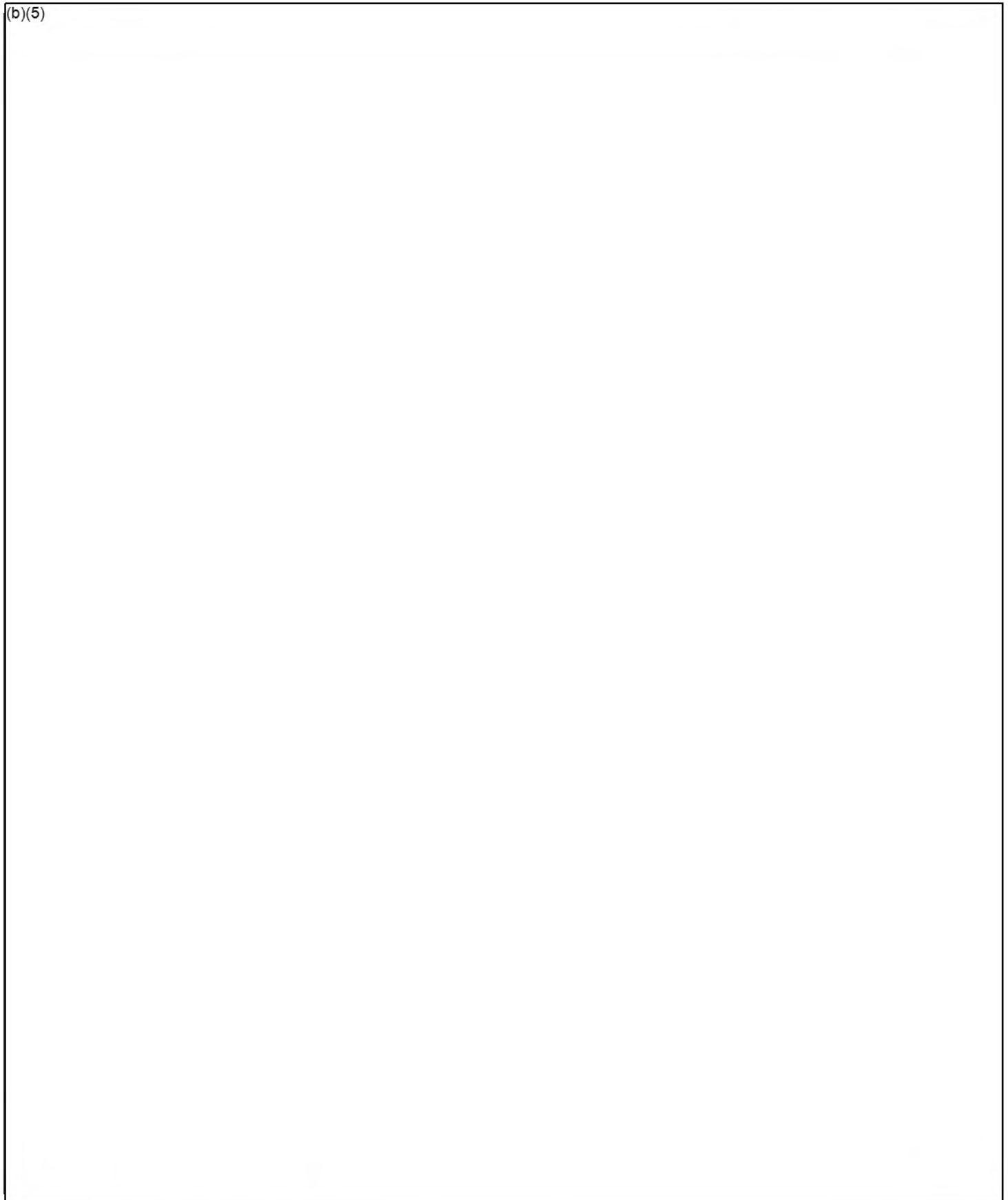
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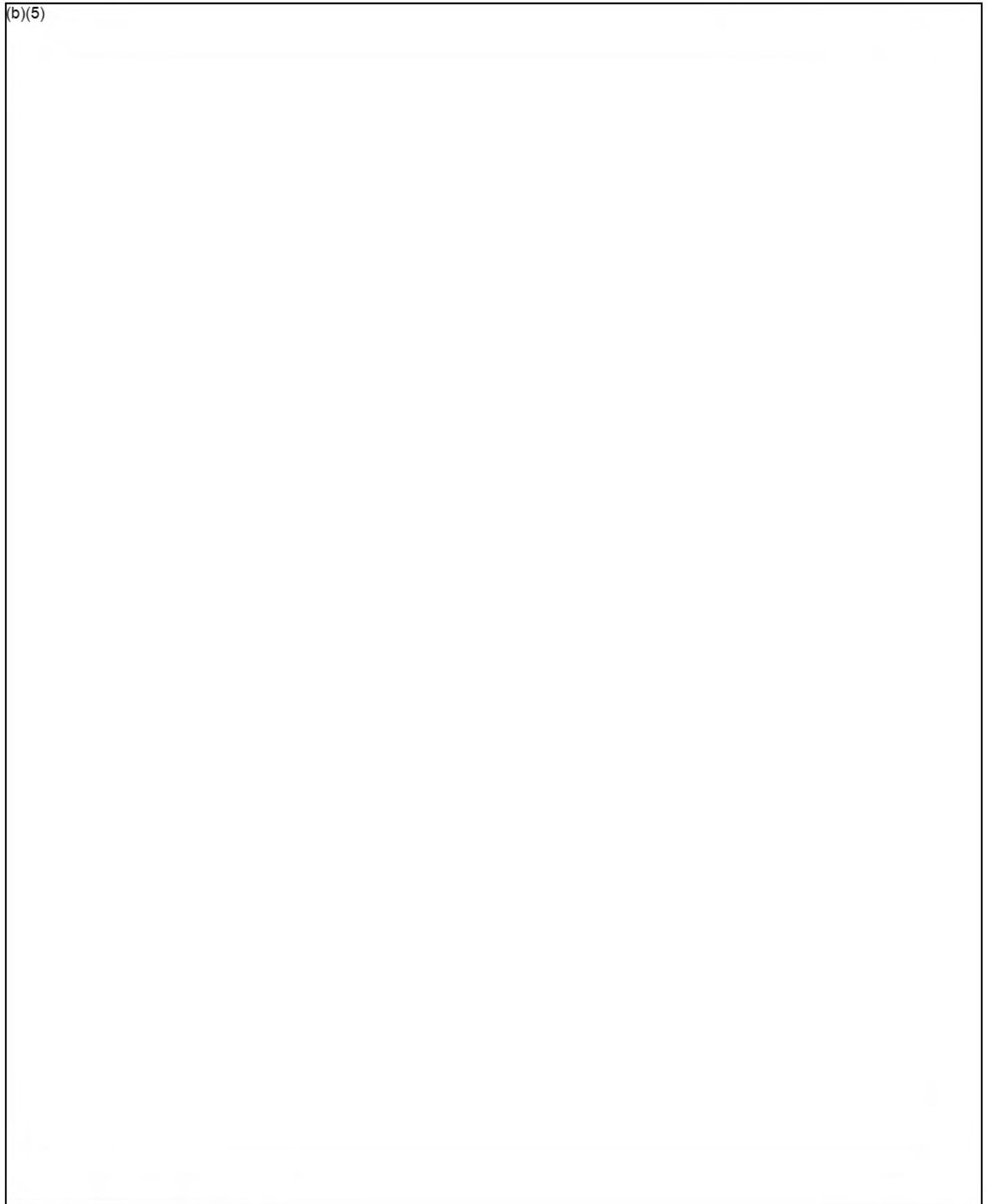
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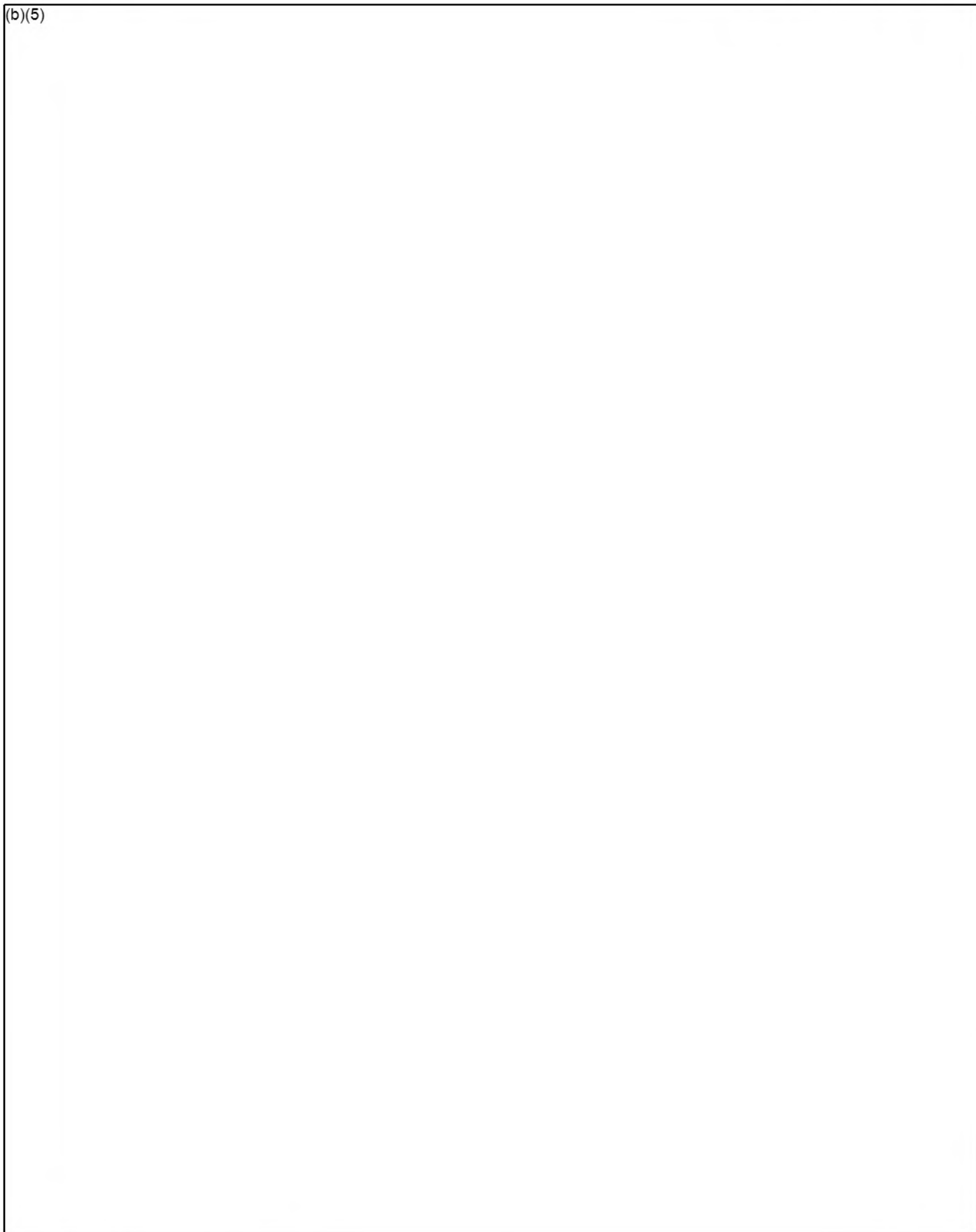
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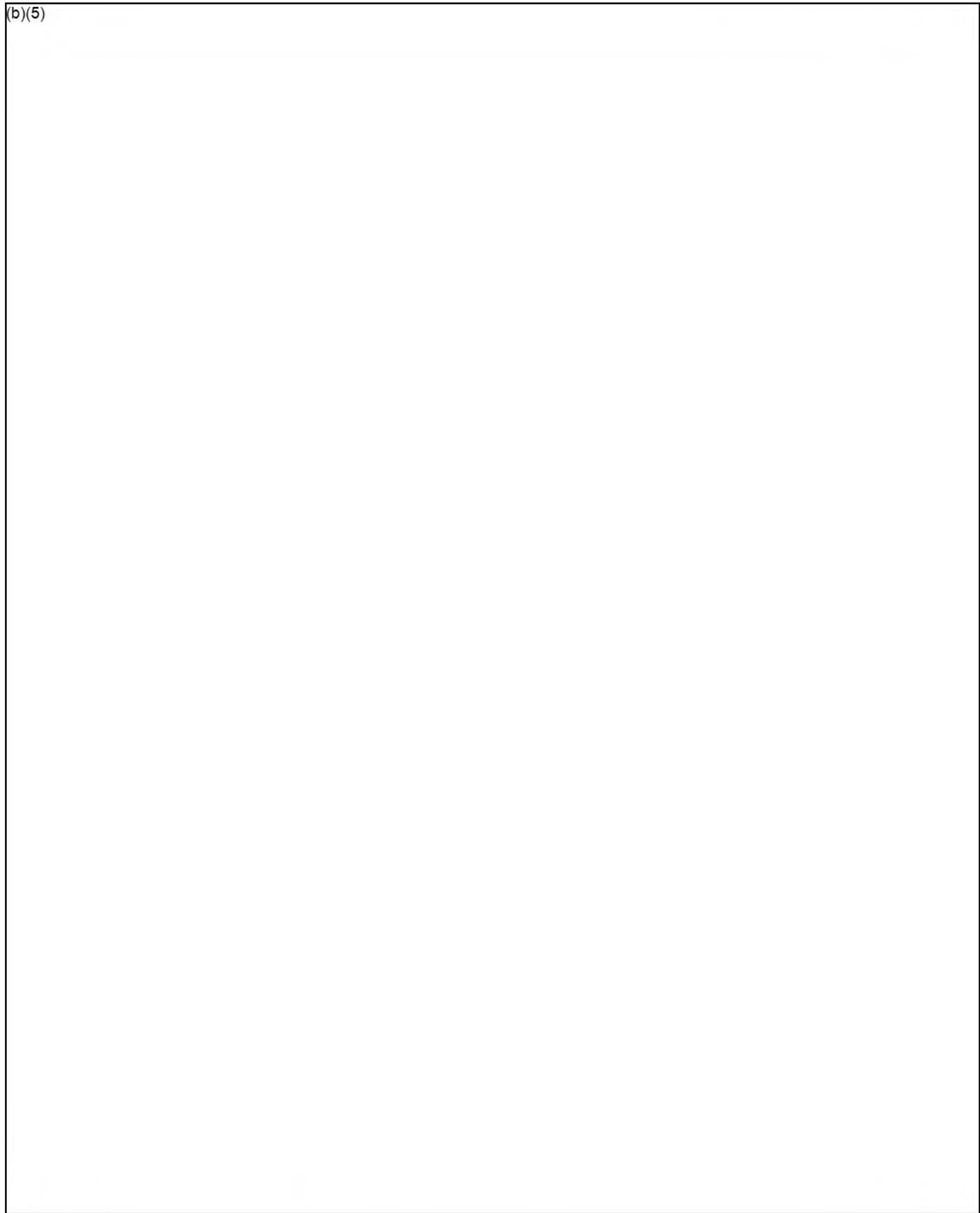
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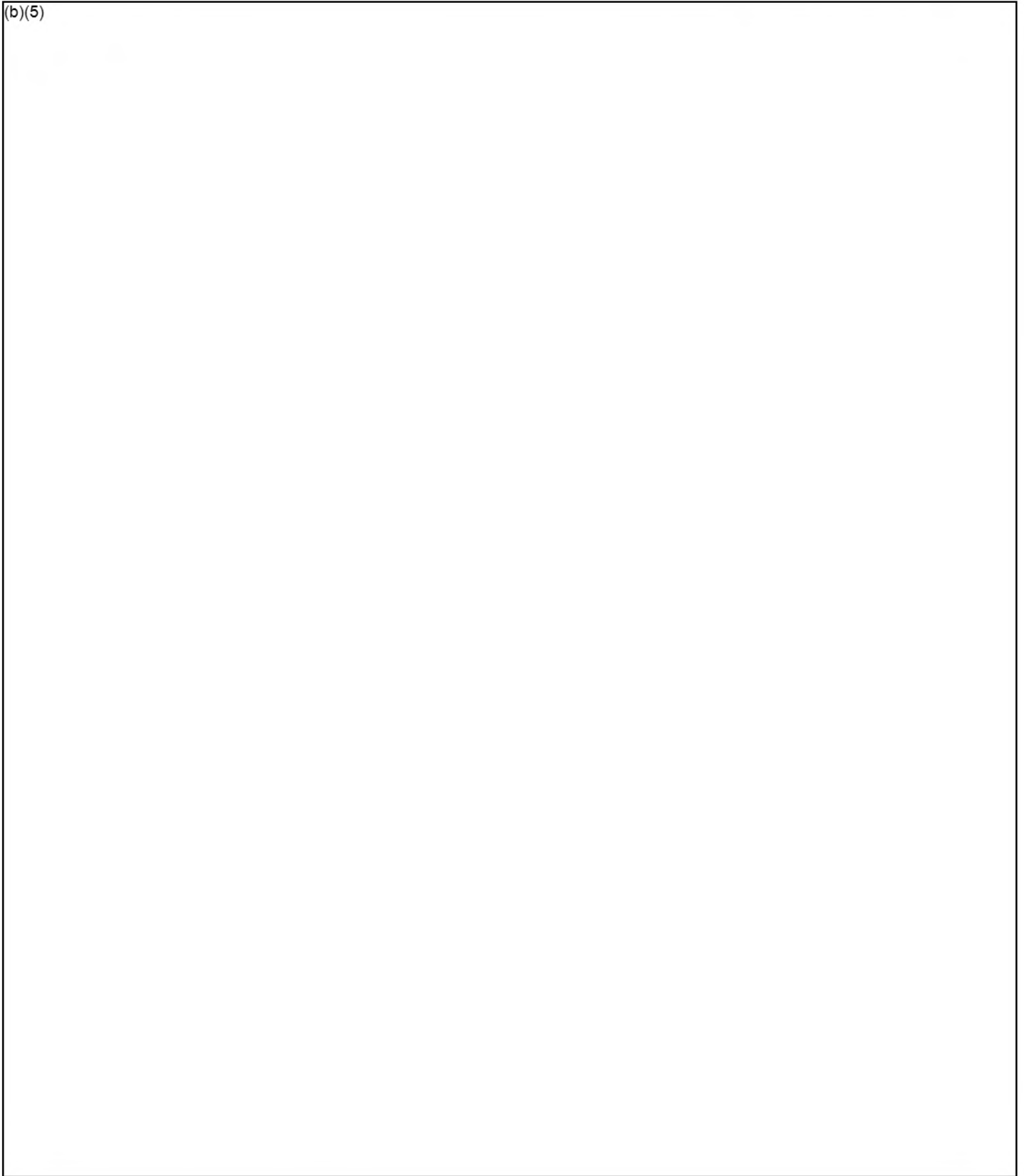
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Last Modified: Mon Aug 13 10:46:03 CDT 2018

[EXTERNAL] Re: call today? (5) msg retracted> for Printed Item: 55 (Attachment 7 of 26)
To: Blackburn, Scott R. (DISABLED ACCT)[Scott.Blackburn@va.gov]
From: Peter Levin
Sent: Mon 9/4/2017 6:40:27 PM
Subject: [EXTERNAL] Re: call today?

Okay, that was quick.

I don't know if this is you in the background, but I just got a call from a "VA insider" saying that VA has told MITRE *not* to cut us, but to cut themselves back.

I can't wait to speak to you on Thursday (or later) ;)

THANKS and best,

-P

On Mon, Sep 4, 2017 at 1:20 PM, Peter Levin (b)(6) <[REDACTED]@amida.com> wrote:

Hi Scott,
I hope this finds you well and enjoying your last weekend, for now ;), as a federal employee. I am sorry to disturb you.
I hope you'll agree it was the right thing to do.

Good news and bad news:

The good news is that Marcy and Rob apparently had a good discussion this week. You may or may not know this, and you may or may not understand this, but it is a direct result of your "intervention". I can explain as useful. But it was useful.

The bad news is that things with EHRM are going off the rails a bit. My advice from folks you know and trust is to raise this to David. I can see this going both ways. On the one hand, he needs to know. On the other hand, it will hurt Windom (which I absolutely don't want).

The root cause of the trouble is that he (David, and John W) are being told that everything is "all set" on data migration. It is simply not true. The people doing the telling are eager to see MITRE/Amida bounced from the team. I got that call on Friday afternoon.

As usual, the contractors are just telling leadership what they want to hear. And the government employees have an agenda all their own. I personally admire Windom a lot, but he does not have the technical judgment to make a decision, and he is relying on Short a lot. Sweeping stuff under the rug (for the next guy) is a pretty typical VA approach.

Indeed, the reason so many programs have failed at VA is because people don't accept and deal with the truth. Eventually that blows up and kills the program. This is what happened to HealtheVet, CoreFLS, Strategic Asset Management, Scheduling, and many other big VA IT programs. The only way we made VBMS successful was by forcing VBA and OIT to deal with all the hard truths of the program. That's exactly not what's happening here.

My draft to the secretary is below, and I think I should send it later this evening or very first thing (6am) tomorrow. Your advice and perspective would be invaluable.

Thanks and best,

Peter

=====

Mr. Secretary:

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VA-18-0298 and VA-18-0299-H-000573

This email is to alert you that I have been told my contract with VA to analyze the data migration plan for Cerner is at risk

Senior members of the program office are not happy that I continue to tell you that I do not believe their data migration plan is adequate, and will put the program at long-term risk.

For as long as you care to hear it, I will continue to tell you the facts as I see them.

And yes, this also means I am willing to forgo my sub-contract to do so. You should expect nothing less from any of us.

Document ID: 0.7.1705.630777-000008

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdl)
/cn=recipients/cn=vacosandoc>

Filename: EsaEmbeddedMsg (6).msg <extracted>

Last Modified: Mon Aug 13 10:46:03 CDT 2018

EsasEmbeddedMsg (6).msg extracted for Printed Item: 55 (Attachment 8 of 26)
To: Peter Levin (b)(6)@amida.com]
Cc: Short, John (VACO)[John.Short@va.gov]
From: Blackburn, Scott R.
Sent: Wed 2/21/2018 7:47:29 PM
Subject: RE: [EXTERNAL] data migration (request from jackie/mitre)

I'm guessing John Short is the right guy to talk to here

From: Peter Levin (b)(6)@amida.com]
Sent: Wednesday, February 21, 2018 7:14 AM
To: Blackburn, Scott R.
Subject: [EXTERNAL] data migration (request from jackie/mitre)

Hi Scott,

Jackie asked me to follow up with you regarding a data migration task (or initiative?) that you are heading (or just know about?).

Thinking about you guys a lot; eager to see you at your convenience.

Best,

-P

617-921-0471

Document ID: 0.7.1705.630777-000009

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: EsaEmbeddedMsg (7).msg <extracted>

Last Modified: Mon Aug 13 10:46:03 CDT 2018

EsaEmbeddedMsg (7).msg <extracted> for Printed Item: 55 (Attachment 9 of 26)
To: Blackburn, Scott R. (DISABLED ACCT)[Scott.Blackburn@va.gov]
From: Peter Levin
Sent: Wed 2/21/2018 12:13:37 PM
Subject: [EXTERNAL] data migration (request from jackie/mitre)

Hi Scott,
Jackie asked me to follow up with you regarding a data migration task (or initiative?) that you are heading (or just know about?).

Thinking about you guys a lot; eager to see you at your convenience.

Best,

-P

617-921-0471

Document ID: 0.7.1705.630777-000010

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: FW: [External] connecting scott to charlie (8).msg <extracted>

Last Modified: Mon Aug 13 10:46:03 CDT 2018

FW: [External] connecting scott to charlie (8).msg <extracted> for Printed Item: 55 (Attachment 10 of 26)
To: James, Bill [Bill.James@va.gov]
From: Blackburn, Scott R.
Sent: Tue 11/7/2017 12:57:39 AM
Subject: FW: [External] connecting scott to charlie

Do you know this guy?

From: De Sanno, Charles [USA] (b)(6) [REDACTED]@bah.com]
Sent: Monday, November 06, 2017 11:23 AM
To: Peter Levin; Blackburn, Scott R.
Subject: [EXTERNAL] Re: [External] connecting scott to charlie

Peter, thank you very much for the introduction!

Scott, I'd love to have the opportunity to meet you and discuss OIT and future road ahead. I can also discuss the past if interested as I created OIT in 2006 and ran engineering and operations for 8 years before leaving. I am the architect of many systems and processes still in place at VA. Additionally, I architected and won MASS while at Leidos and of course the EHRM PMO at Booz Allen.

My goal is to help in any way!

Perhaps we can synch up in person soon! I know you are very busy, so please let me know who I can work with to possibly find some time whether it be in person or via phone!

My cell is (b)(6) [REDACTED]

Thank you!

Charlie De Sanno
Partner, Booz Allen Hamilton

From: Peter Levin (b)(6) [REDACTED]@amida.com>
Sent: Saturday, November 4, 2017 10:57:10 AM
To: Blackburn, Scott R.; De Sanno, Charles [USA]
Subject: [External] connecting scott to charlie

Dear Scott, dear Charlie,

with this email I'd like to briefly connect you.

Scott is the recently-former interim deputy secretary, and the acting CIO at VA. It has been a great privilege and joy to get to know and occasionally work with him.

Charlie was a deputy CIO when we both worked for Roger, and someone I admire and trust as a "no nonsense, get it done" guy with a tremendous sense of humor and wonderful administrative touch. He is today at BAH and is leading the EPMO effort on their behalf.

I warmly recommend you to each other.

Best regards,

Peter

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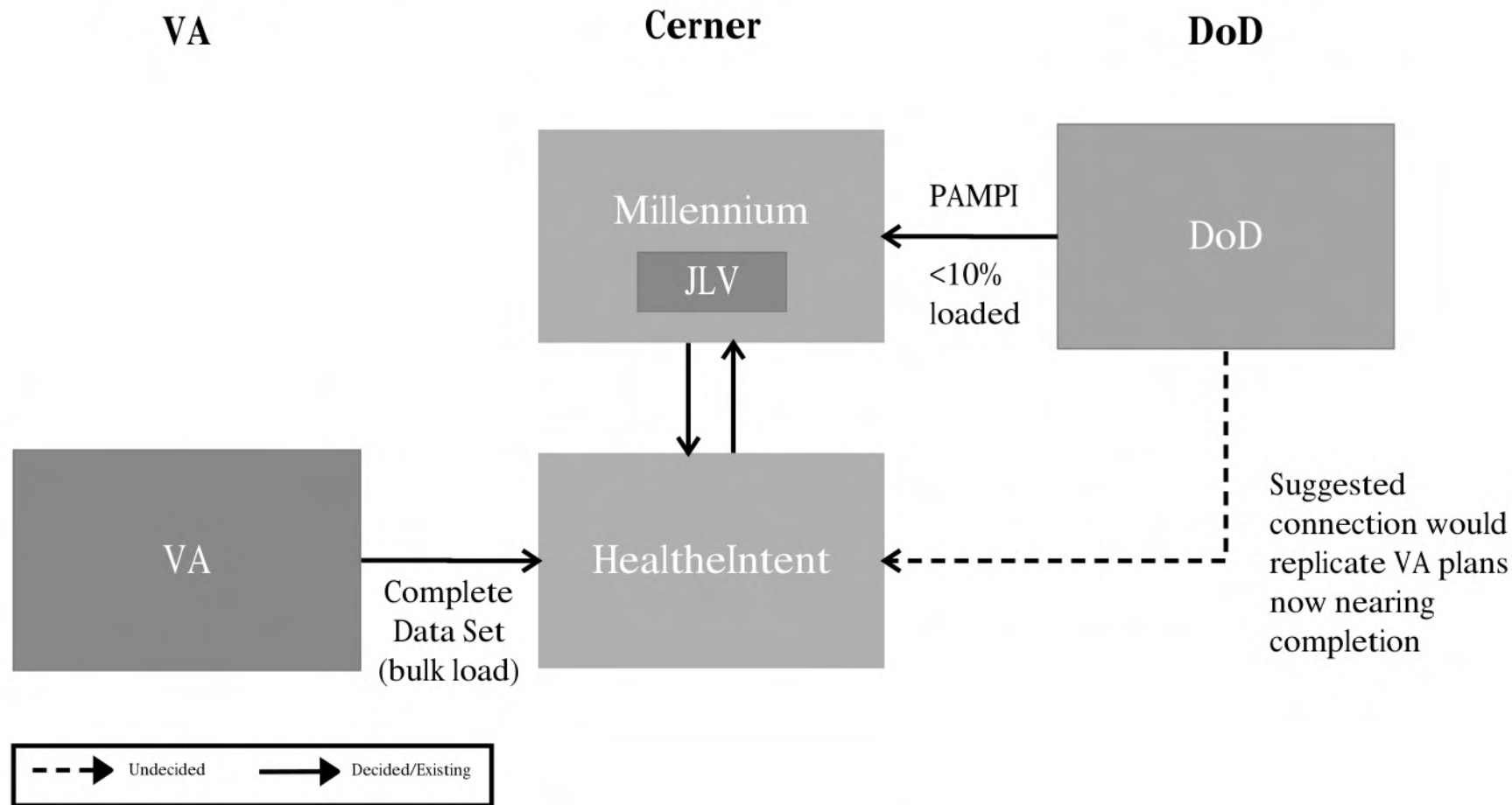
VA-18-0298 and VA-18-0299-H-000580

Document ID: 0.7.1705.630777-000013

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdl)
/cn=recipients/cn=vacosandoc>

Filename: Levin slide on DoD data sharing -october 2017.pptx <extracted>

Last Modified: Mon Aug 13 10:46:03 CDT 2018



PAMPI – Problems, Allergies, Medications, Procedures, Immunizations

Not currently included: Laboratory Results, Radiology Reports, Vital Signs, Notes, and Tricare Claims data

JLV is displayed within Millennium – Attaches to legacy DoD, VistA, other Cerner instances, eHealth Exchange

Important: Cerner provided Medicines and Allergies should be provided back to VA (HDR) and DoD (CDR)

VA-DoD Data Comparison

Cerner Data Domain		VA Migration	DoD Migration
1.	Demographics	X	X
2.	Allergies	X	X
3.	Conditions*	X	X
4.	Immunizations	X	X
5.	Laboratory Results	X	-
6.	Medications	X	X
7.	Procedures	X	X
8.	Appointments	X	-
9.	Encounters	X	-
10.	Notes and Radiology Reports	X	-
11.	Advance Directives	TBD	-
12.	(Tricare for DoD) Claims Data	TBD	-
13.	Providers	TBD	-
14.	Questionnaires	TBD	-
* Conditions are also referred to as problems/diagnoses			
** Only Anatomic Pathology laboratory results			

The DoD Migration is focused on migrating the “PAMPI+” domains directly to Millennium, which constitute a subset of the domains VA is targeting for migration.

Document ID: 0.7.1705.630777-000016

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdl)
/cn=recipients/cn=vacosandoc>

Filename: RE: [EXTERNAL] check in (12).msg <extracted>

Last Modified: Mon Aug 13 10:46:03 CDT 2018

RE: [EXTERNAL] check in (b)(6) [redacted]@amida.com] psg <extracted> for Printed Item: 55 (Attachment 16 of 26)
To: Peter Levin (b)(6) [redacted]@amida.com]
From: Blackburn, Scott R.
Sent: Wed 4/4/2018 12:39:41 AM
Subject: RE: [EXTERNAL] check in

Thanks for the note. I'm trying to keep IT momentum going. EHRM is completely up in the air until leadership questions shake out.

From: Peter Levin (b)(6) [redacted]@amida.com]
Sent: Tuesday, April 03, 2018 12:23 PM
To: Blackburn, Scott R.
Subject: [EXTERNAL] check in

Hi - just a quick hello and sign of life. Hope you're holding up okay. I've enjoyed and appreciated your social media posts/tweets. Best, -P

There were some things in the Camilo discussion that may be worth a short call (or visit, as you prefer).

Best, -P

From: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=vacosandoc>
To: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlt)/cn=recipients/cn=vacosandoc>
Cc:
Bcc:
Subject: FW: Please Review Tonight
Date: Mon Aug 13 2018 11:46:03 EDT
Attachments: [EXTERNAL] call today? (1).msg
[EXTERNAL] dod data sharing (2).msg
Levin slide on DoD data sharing -october 2017.pptx
[EXTERNAL] extremely confidential - eyes only - please do not forward or share -
secva message this morning (3).msg
[EXTERNAL] Fwd: amida weekly ehrm data migration update (4).msg
Amida VA EHRM Weekly Report -sept 14 -final.docx
[EXTERNAL] Re: call today? (5).msg
EsaEmbeddedMsg (6).msg
EsaEmbeddedMsg (7).msg
FW: [External] connecting scott to charlie (8).msg
FW: [EXTERNAL] dod data sharing (9).msg
ATT00001.htm
Levin slide on DoD data sharing -october 2017.pptx
FW: [EXTERNAL] roger baker (10).msg
RE: [EXTERNAL] check in (11).msg
RE: [EXTERNAL] check in (12).msg
RE: [External] connecting scott to charlie (13).msg
RE: [EXTERNAL] extremely confidential - eyes only - please do not forward or share -
secva message this morning (14).msg
RE: [EXTERNAL] follow-up from our last meeting (15).msg
RE: [EXTERNAL] Fwd: meeting with rob on wednesday (16).msg
RE: [EXTERNAL] stakeholder enterprise portal (sep) and ebenefits (17).msg
RE: [EXTERNAL] susan perez (18).msg
RE: RE: [EXTERNAL] thursday check in (19).msg
RE: Schedule important: Jack Bates' Availability - Peter needs to re-schedule (20).msg
RE: Schedule important: Jack Bates' Availability - Peter needs to re-schedule (21).msg
Windom (22).msg

Camilo Sandoval

202-461-6910

From: Sandoval, Camilo J.

Sent: Friday, May 04, 2018 2:12 AM

To: Spero, Casin D. <Casin.Spero@va.gov>; Hayes-Byrd, Jacquelyn <Jacquelyn.Hayes-Byrd@va.gov>; O'Rourke, Peter M. <Peter.ORourke@va.gov>

Subject: RE: Please Review Tonight

Pete—

This request from members of congress is based on inaccurate reporting by Arthur Allen from Politico, which was fueled by David Shulkin and Scott Blackburn. In fact, the real outside interference and conflict of interest came from Peter Levin, who was attempting to shape the direction of ongoing contract negotiations between the VA and Cerner. According to John Windom and Ash Zenooz, on several occasions Secretary Shulkin suggested to the EHRM team that Peter Levin be hired as a direct contractor. When those efforts failed, Peter Levin then acquired VA contracts through MITRE with Secretary Shulkin's influence. Please note that Peter Levin, Scott Gould, Stephen Ondra and Michele Flournoy (married to Scott Gould) all work for or are associated with AMIDA and MITRE. Ironically, they were all senior VA or DOD employees under the Obama administration with access to insider information.

A key question Arthur Allen and interested members of congress should investigate and write about is, why did Shulkin and Blackburn continue to communicate with Peter Levin, and put undue pressure on John Windom to hire Peter Levin's firm—AMIDA—as a contractor. Also, why was Shulkin in such a rush to sign the Cerner contract last year(Oct/Nov) when there was over 51 major findings and recommendations added to the contract over the past several months? And for the record, it was a team of top medical CIOs and practitioners—put together by Ike Perlmutter and Bruce Moskowitz—who identified the flaws in the contract and made the recommendations, not MITRE. MITRE had advised against a strategic pause, and then took credit for the work done after.

Please read attachments.

From: Spero, Casin D.

Sent: Thursday, May 03, 2018 7:31 PM

To: Sandoval, Camilo J.; Hayes-Byrd, Jacquelyn; O'Rourke, Peter M.

Subject: RE: Please Review Tonight

Good info Cam, we may want to remind the interested parties of that.

From: Sandoval, Camilo J.

Sent: Thursday, May 03, 2018 4:13:22 PM

To: Hayes-Byrd, Jacquelyn; O'Rourke, Peter M.; Spero, Casin D.

Subject: RE: Please Review Tonight

Thank you Jacquie. If we go back to Shulkin's EHRM hearing testimony, he mentions under oath that he and Scott Blackburn requested outside, non-governmental help from the top 5 Medical CIO's. These experts are who alerted him to the many interoperability issues previously unknown to Cerner or VA staff.

From: Hayes-Byrd, Jacquelyn
Sent: Thursday, May 03, 2018 5:42 PM
To: O'Rourke, Peter M.; Sandoval, Camilo J.; Spero, Casin D.
Subject: Please Review Tonight

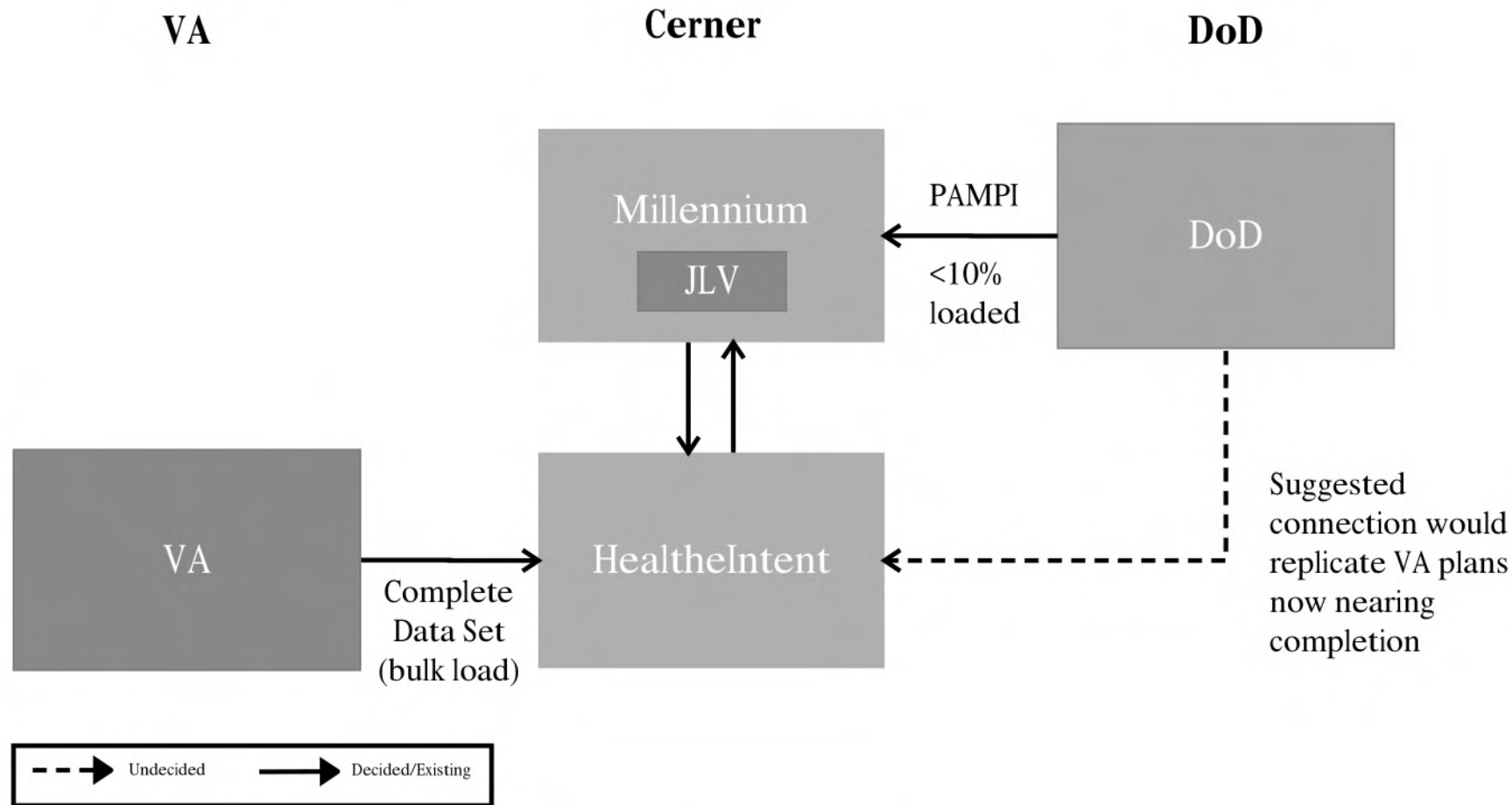
Please see these two documents tonight as the Dep Sec provided this to Colonel Gainey late this afternoon

And Andy will be giving it to the Secretary first in the a.m. don't want you to be blindsided and I would like for you to be prepared to discuss.

Jacquie

From: Washington, Conrad
Sent: Thursday, May 03, 2018 5:32 PM
To: Hayes-Byrd, Jacquelyn
Subject: REQUESTED SCAN

Conrad Washington
Special Assistant
Office of the Secretary
810 Vermont Ave, NW
Washington, DC 20420
202-461-7865 (O)
Conrad.washington@va.gov



PAMPI – Problems, Allergies, Medications, Procedures, Immunizations

Not currently included: Laboratory Results, Radiology Reports, Vital Signs, Notes, and Tricare Claims data

JLV is displayed within Millennium – Attaches to legacy DoD, VistA, other Cerner instances, eHealth Exchange

Important: Cerner provided Medicines and Allergies should be provided back to VA (HDR) and DoD (CDR)

VA-DoD Data Comparison

Cerner Data Domain		VA Migration	DoD Migration
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4.	Immunizations	X	X
5.	Laboratory Results	X	-
6.	Medications	X	X
7.	Procedures	X	X
8.	Appointments	X	-
9.	Encounters	X	-
10.	Notes and Radiology Reports	X	-
11.	Advance Directives	TBD	-
12.	(Tricare for DoD) Claims Data	TBD	-
13.	Providers	TBD	-
14.	Questionnaires	TBD	-
* Conditions are also referred to as problems/diagnoses			
** Only Anatomic Pathology laboratory results			

The DoD Migration is focused on migrating the “PAMPI+” domains directly to Millennium, which constitute a subset of the domains VA is targeting for migration.

Document ID: 0.7.1705.631071-000004

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: [EXTERNAL] extremely confidential - eyes only - please do not forward or share - secva message this morning (3).msg <extracted>

Last Modified: Mon Aug 13 10:46:03 CDT 2018

[EXTERNAL] extremely confidential - eyes only - please do not forward or share - secva message this morning (3).msg <extracted> for Printed Item: 82 (Attachment 4
To: Wynn, Jackie (b)(6) [REDACTED]@mitre.org]; Blackburn, Scott R. (DISABLED ACCT)[Scott.Blackburn@va.gov]
From: Peter Levin
Sent: Thur 1/4/2018 10:58:02 AM
Subject: [EXTERNAL] extremely confidential - eyes only - please do not forward or share - secva message this morning

Jackie suggested last night that I close the loop with the secretary. She was right/great idea.

My message to him this morning, below.

Scott, literally my waking thought was of you. Best of luck with the surgery.

And best personal regards to both of you, -P

===

Hi David,

Three meetings yesterday:

1) with Windom and two MITRE reps - WH issues about my previous VA affiliation came up - I believe these were fully addressed to John's satisfaction. As you know, the outcome of the presidential election was a surprise; there are some hurt feelings from an appointee aspirant who thought I could have done more to help them *prior* to the election. This was also addressed to his satisfaction.

That said, we spent most of the hour reviewing information architecture, surprisingly good agreement (he liked the way I explained it, exactly the same way I explain it to you [PLL - and Scott and Jackie]). From a content perspective we are fully aligned, in sequence, priority, and most of the packaging. The discussion confirmed that.

2) unexpectedly, as I was walking out (coat on, rushing to elevator) Ash came out and asked me to speak to Camilo Sandoval, who I did not know or know of, and had not previously met. From a technical perspective, I had the identical conversation with him that I just had, literally minutes before, with John W. When I left I thought we were okay.

We weren't. I left the building and was well on my way to my office when John called me back.

3) we then had the architectural discussion for the third time, this time with Camilo, Ash, and Short (who came in late but was there for most of it, and did most of the talking after he arrived).

In a professional-but-clear way, after net five hours, I went around the table and asked each of the participants a) if there was any difference or deviation between the discussions we had independently and the ones we had together (the answer was no, as it should have been) and b) if whatever crisis or misunderstanding existed before the third meeting was fully and satisfactorily resolved (the answer was yes, as it should have been).

There were some things in the Camilo discussion that may be worth a short call (or visit, as you prefer).

Best, -P

Document ID: 0.7.1705.631071-000005

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: [EXTERNAL] Fwd: amida weekly ehrm data migration update (4).msg <extracted>

Last Modified: Mon Aug 13 10:46:03 CDT 2018

[EXTERNAL] Fwd: amida weekly ehrm data migration update (4).msg <extracted> for Printed Item: 82 (Attachment 5 of 26)
To: Blackburn, Scott H. (DISABLED ACCT)[Scott.Blackburn@va.gov]
From: Peter Levin
Sent: Thur 9/14/2017 9:43:47 PM
Subject: [EXTERNAL] Fwd: amida weekly ehrm data migration update
Amida VA EHRM Weekly Report -sept 14 -final.docx

Scott - confidential to you, please do not forward or share.

MITRE instructed us to stop sending these to VA (Windom, Short, Bates, Hilton, Mingo) three or four weeks ago; I doubt they forward these or anything like them to stakeholders there, so I don't know what they now know (or think). This report is sent by my program manager to theirs; I normally cc Jackie as a courtesy. Jimmy asked this week to be included.

I have not spoken with John W (or the secretary) since before Labor Day.

I did speak to David immediately after his "announcement" of the data migration strategy in mid-August, and advised caution on technical grounds. That was the last I spoke with him on this project. I have not spoken to him at all about the threat to end our work at MITRE. We *have* had brief (and successful) interactions on other non EHRM topics.

Most respectfully and best regards,

Peter

----- Forwarded message -----

From: Peter Levin <(b)(6)@amida.com>
Date: Thu, Sep 14, 2017 at 4:05 PM
Subject: amida weekly ehrm data migration update
To: "Wynn, Jackie" <(b)(6)@mitre.org>, "Providakes, James F." <(b)(6)@mitre.org>
Cc: "Fugate, Tom" <(b)(6)@mitre.org>

Dear Jackie, dear Jimmy,
please find attached the Amida weekly report, due today.

Its long, I know. We've been at it now for 6 weeks, and this is basically what I would have expected in terms of depth, synthesis, and detail.

Please note that the go-forward plan (something we worked on hard last week) is included in Appendix A, exhibit 7 (the data migration plan and LOE).

Also, if you just look at one thing, please go to figure 9 on page 23. Honestly, this is the "money shot" because it is such a good example. Basically it is really hard to do data mapping (right). The caption reads:

The Vx130 Immunization Domain includes 18 fields, and the Cerner Immunization Data Domain model includes 23 fields. This figure illustrates the beginning of a crosswalk to show example migration paths for six fields from the source data model to the target Cerner model. Note that this is an incomplete crosswalk intended only for purposes of illustration.

Many thanks and best regards,

Peter

Document ID: 0.7.1705.631071-000006

Owner: Sandoval, Camilo J. </o=va/ou=exchange administrative group (fydibohf23spdlit)/cn=recipients/cn=vacosandoc>

Filename: Amida VA EHRM Weekly Report -sept 14 -final.docx <extracted>

Last Modified: Mon Aug 13 10:46:03 CDT 2018

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**Weekly Status Report
For the MITRE Corporation**

**On Data Migration Support for VA
Electronic Health Record Modernization**

September 14, 2017

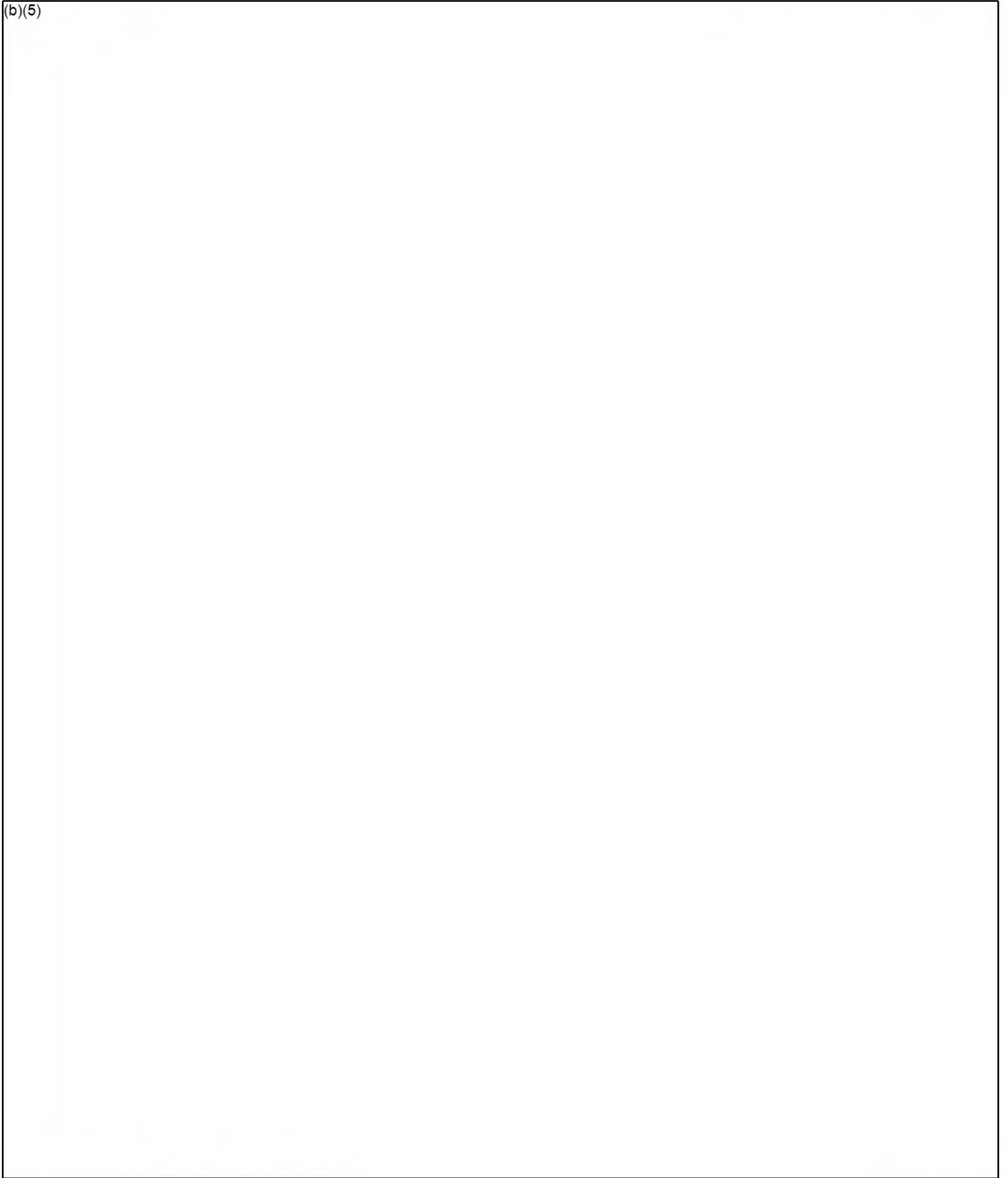
Jeremy Collins
Joy Hwang
Matthew McCall
Leslie Ramirez
Afsin Ustundag
Peter L. Levin

Prepared by
Amida Technology Solutions, Inc.

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(b)(5)



Amida Technology Solutions, Inc.
September 14, 2017

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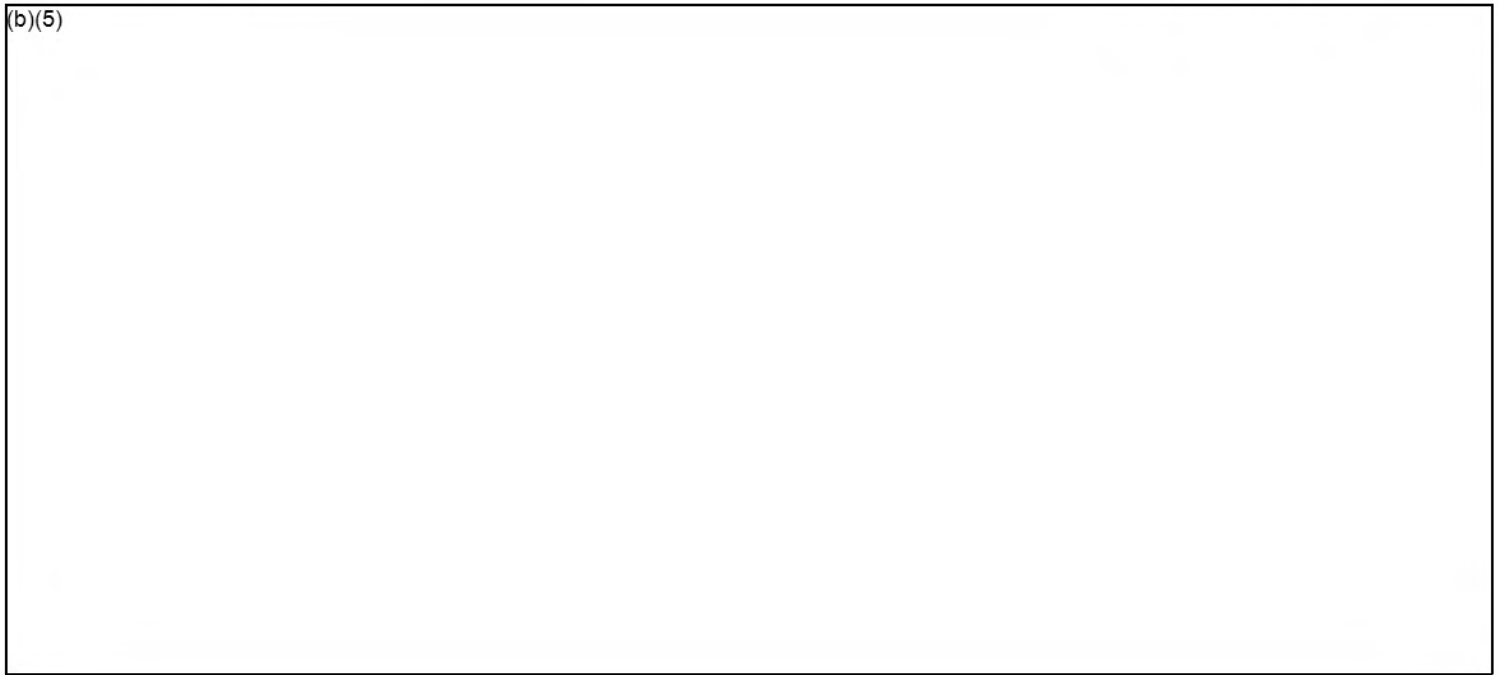
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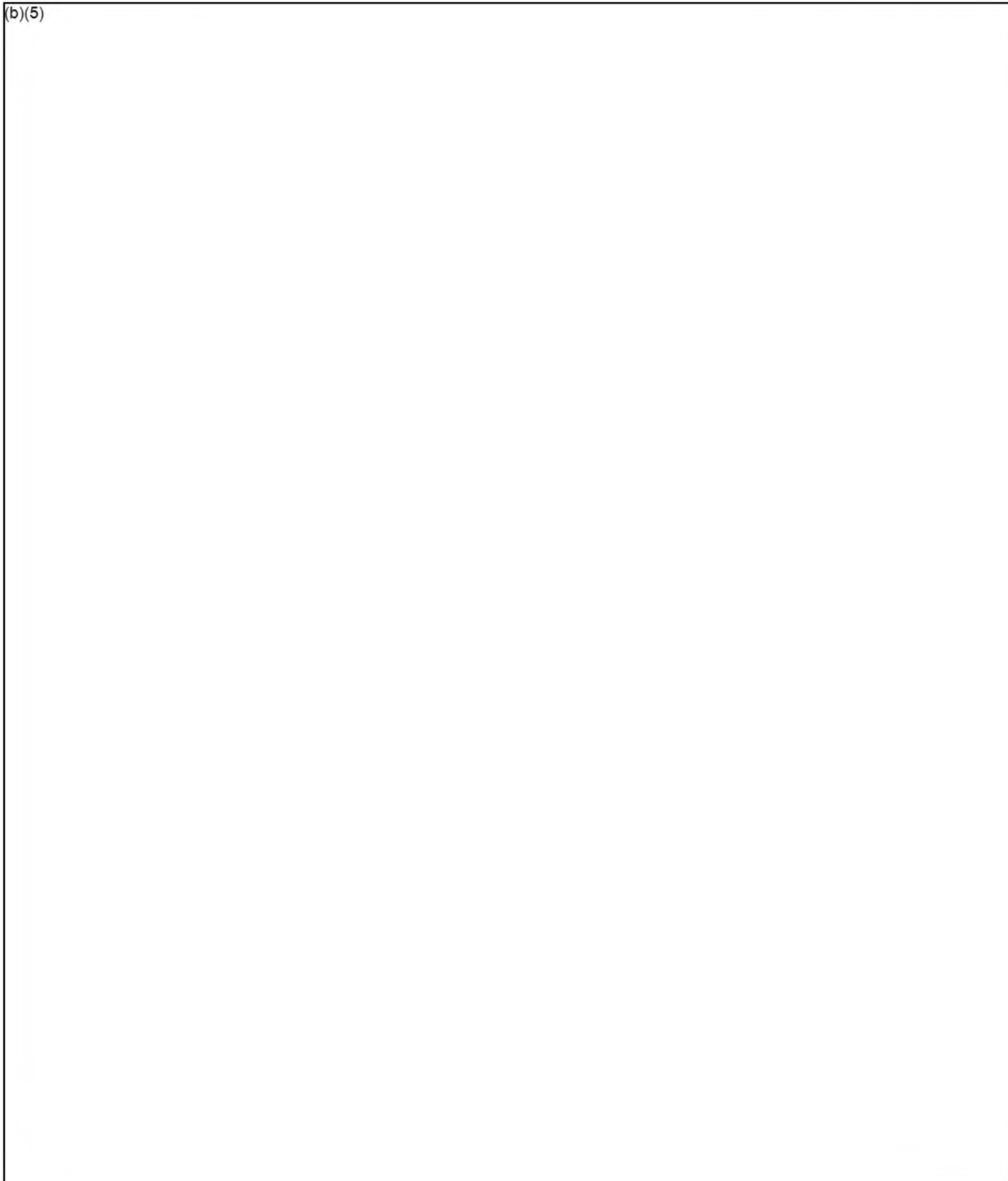


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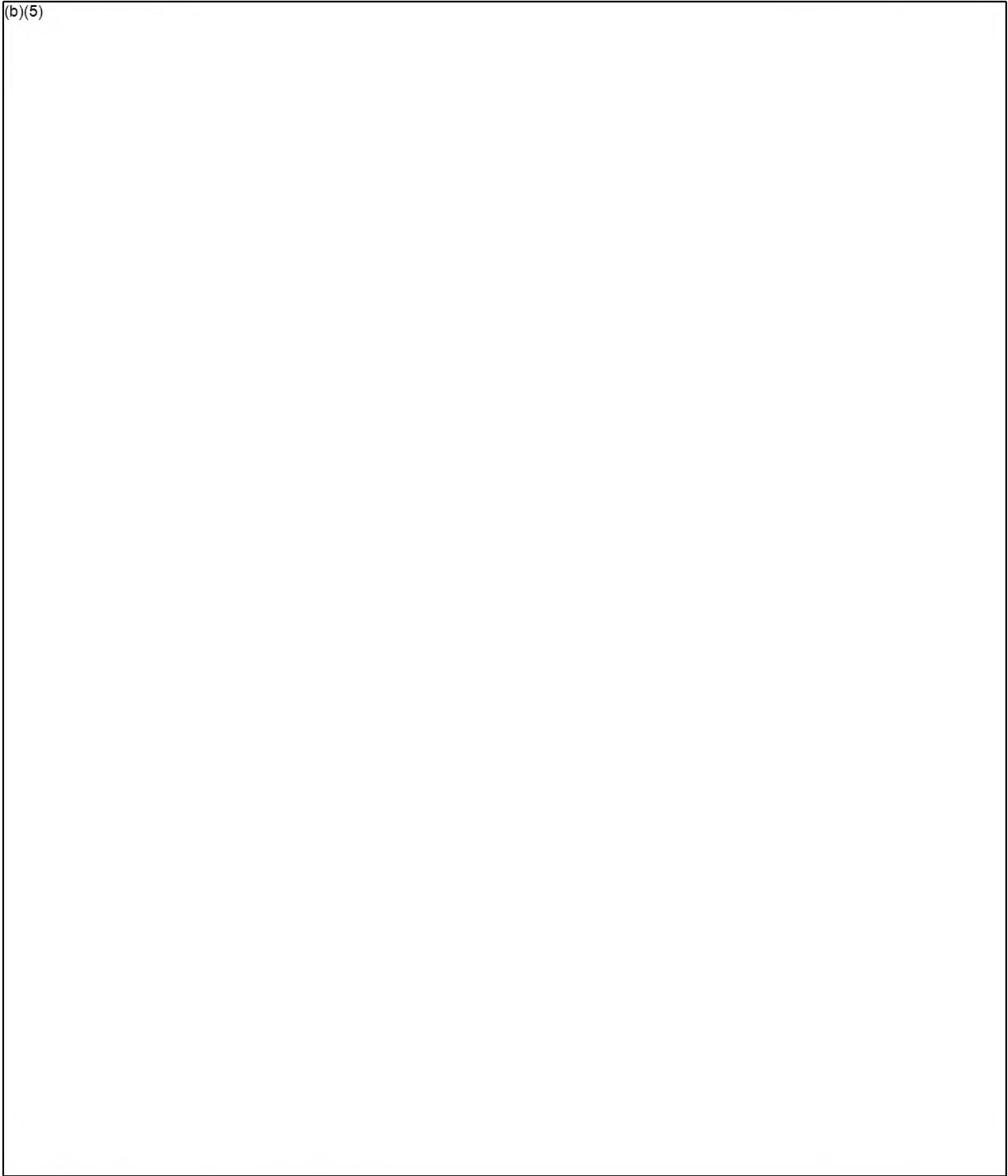


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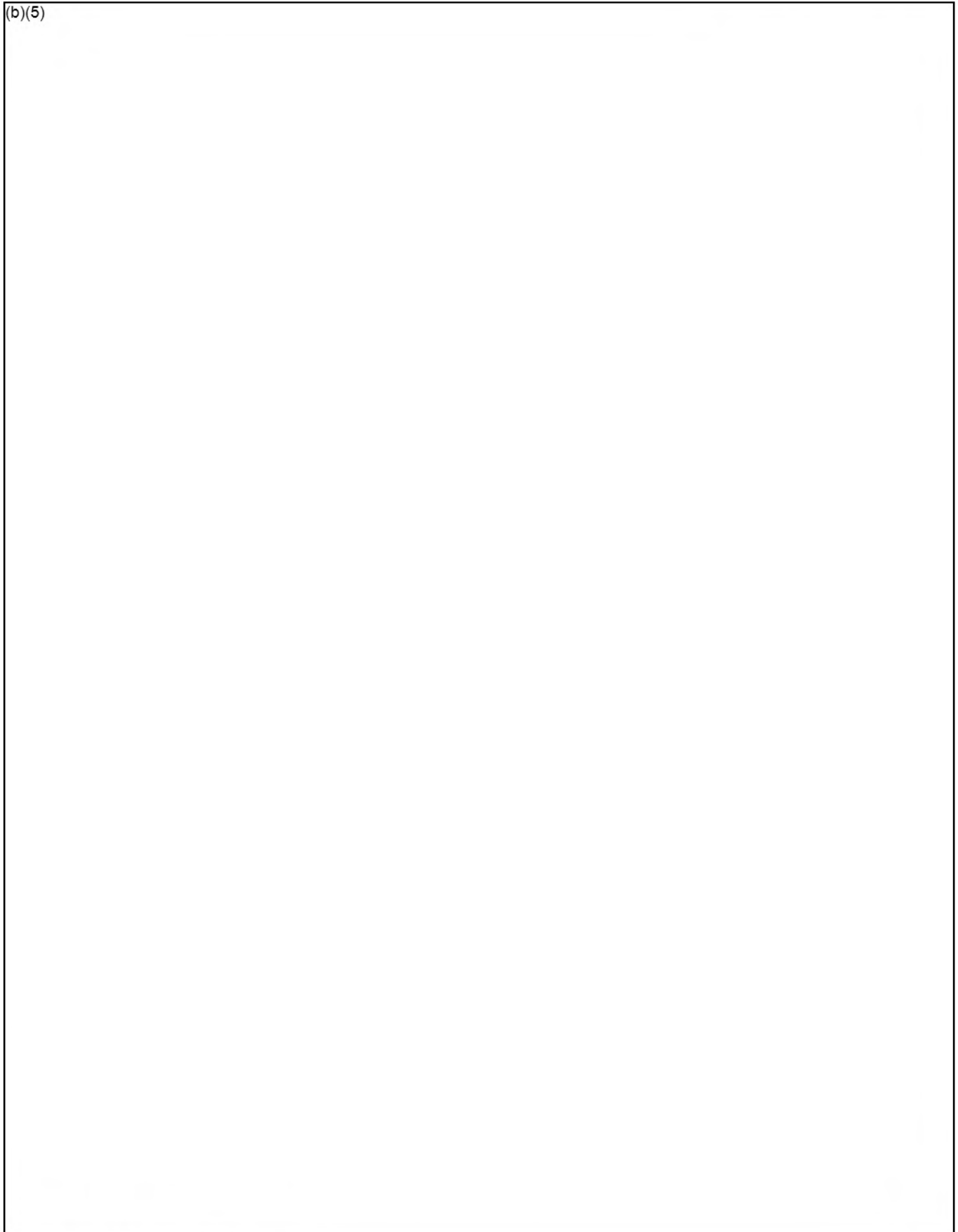
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Amida Technology Solutions, Inc.
September 14, 2017

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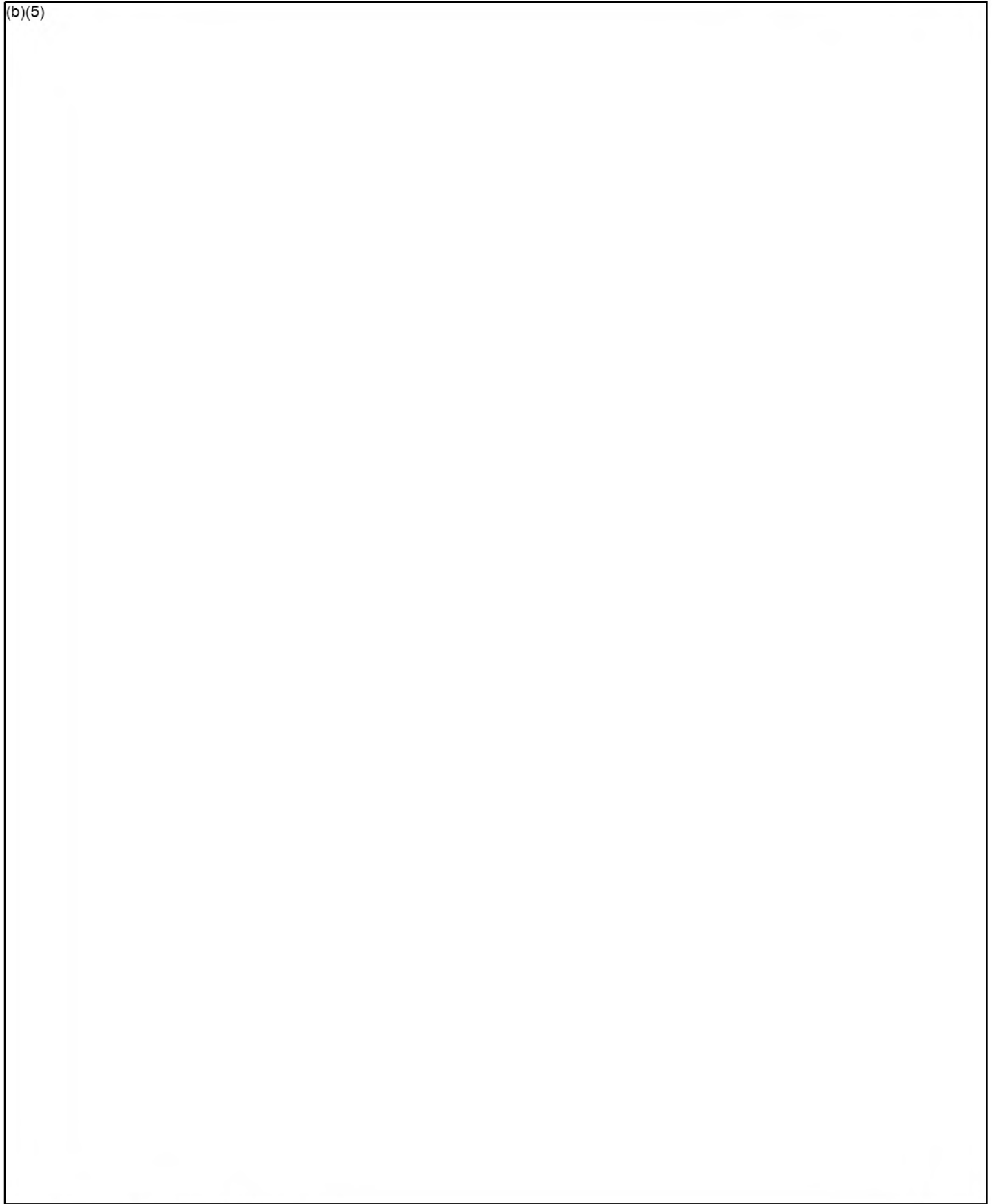
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Amida Technology Solutions, Inc.
September 14, 2017

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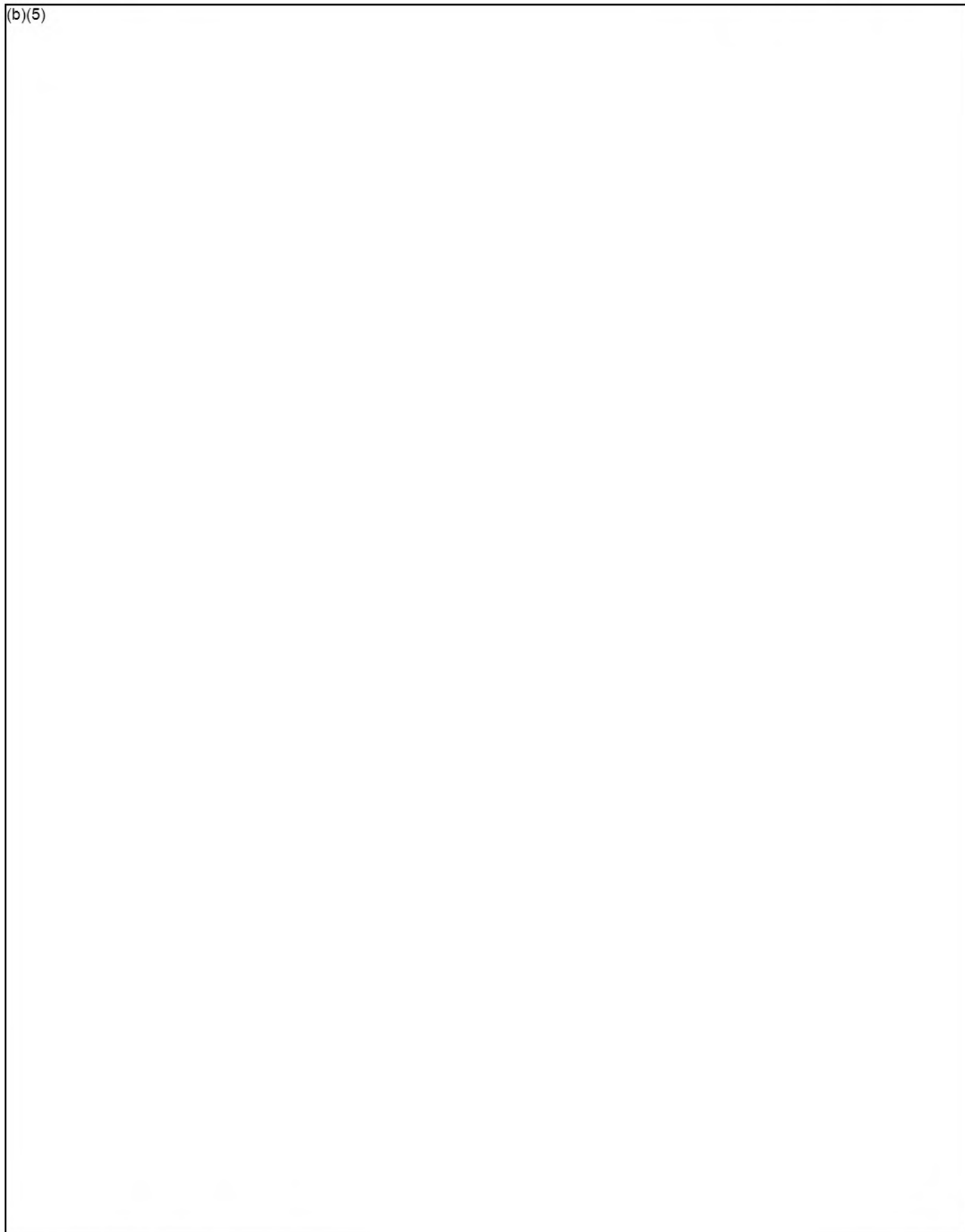
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VA-18-0298 and VA-18-0299-H-000607

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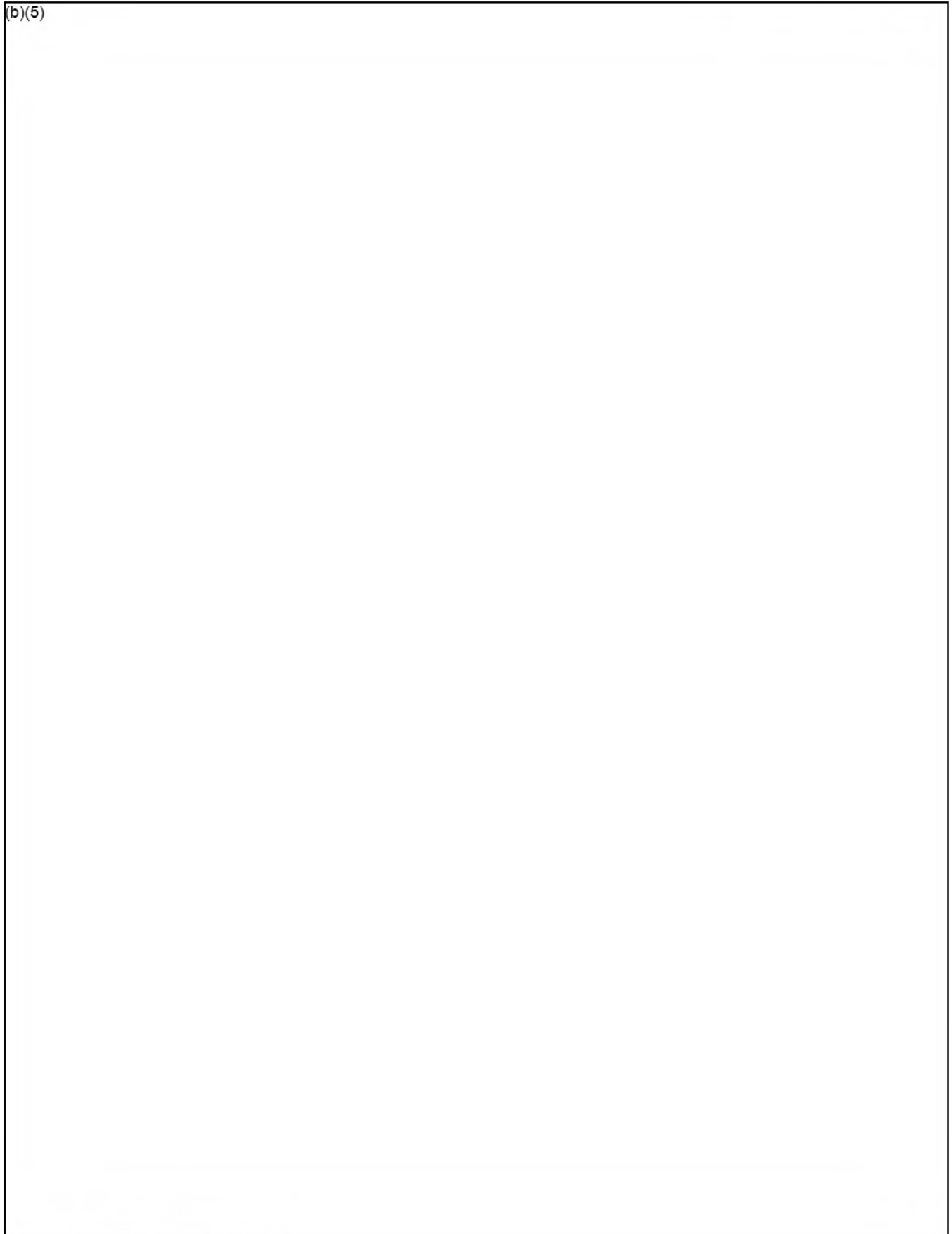
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Amida Technology Solutions, Inc.
September 14, 2017

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VA-18-0298 and VA-18-0299-H-000609

Page 685 of 1093

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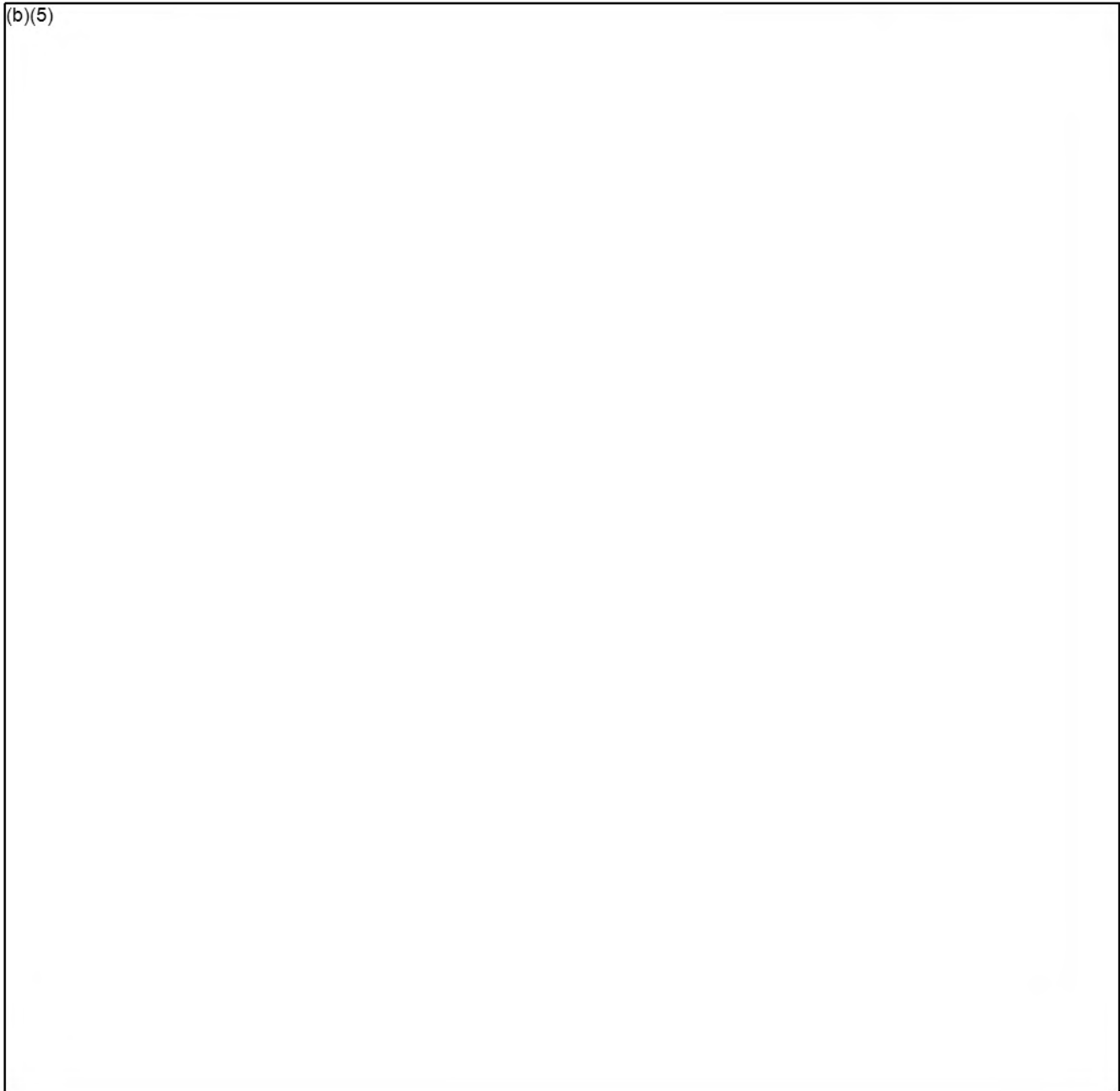
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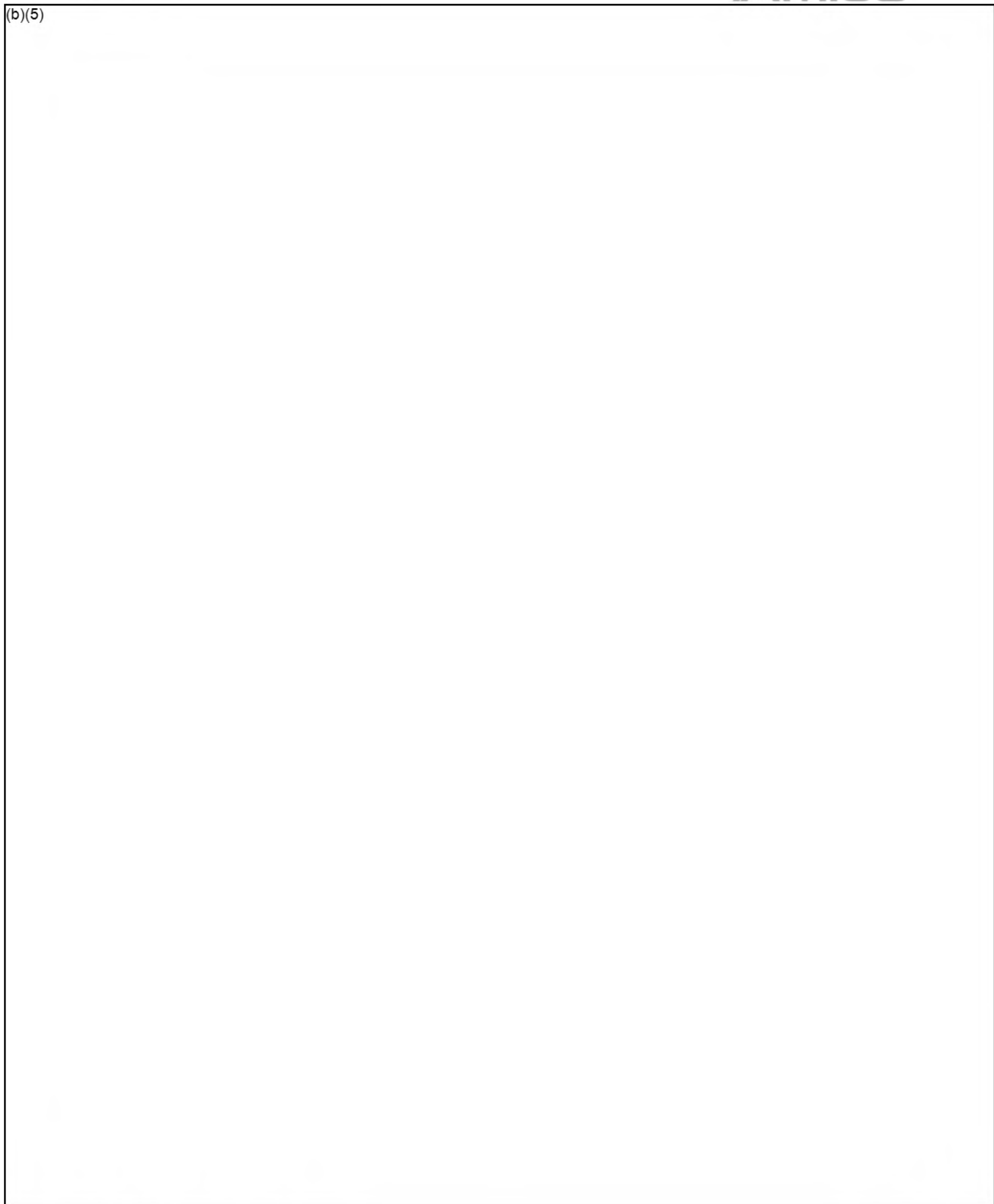


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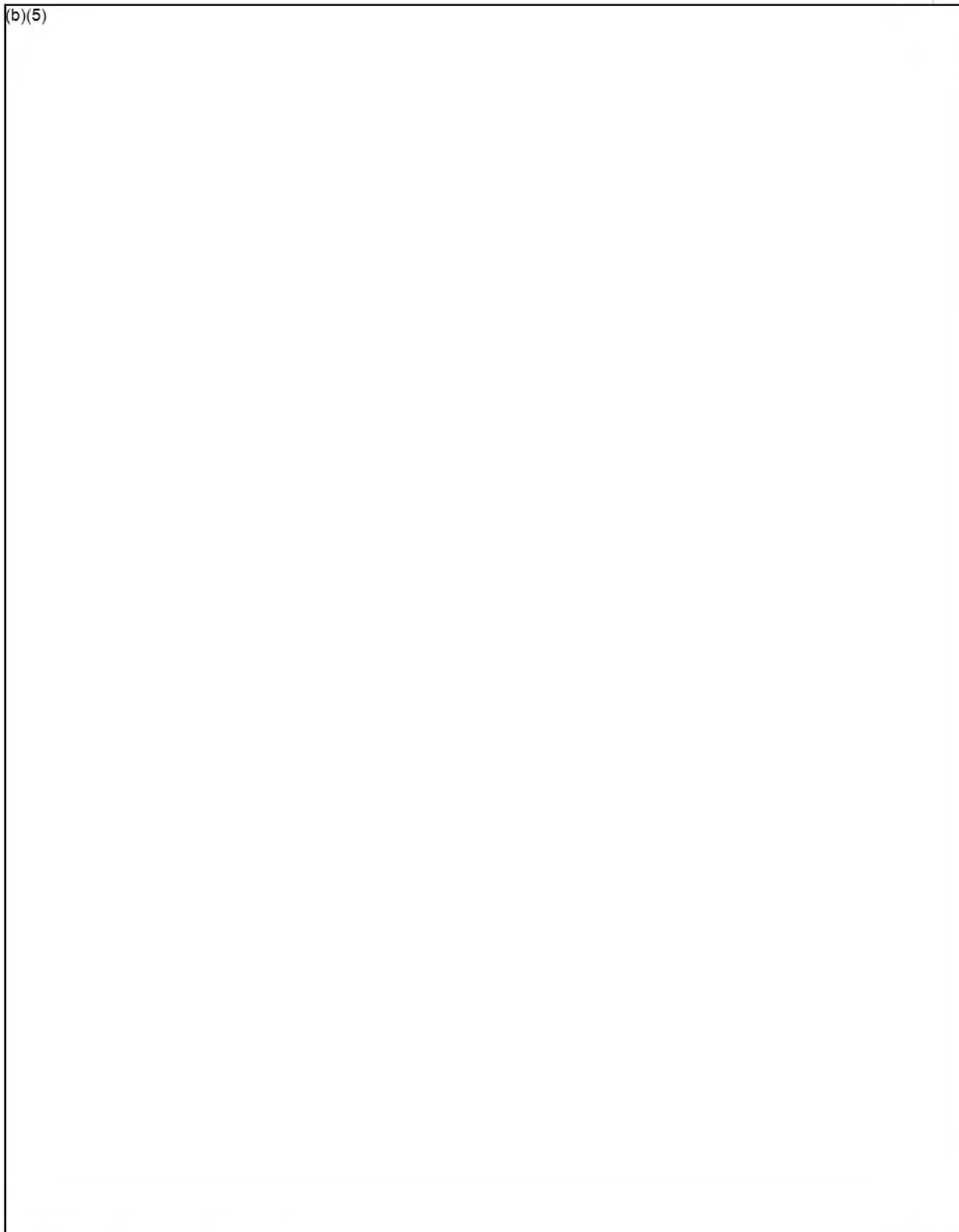
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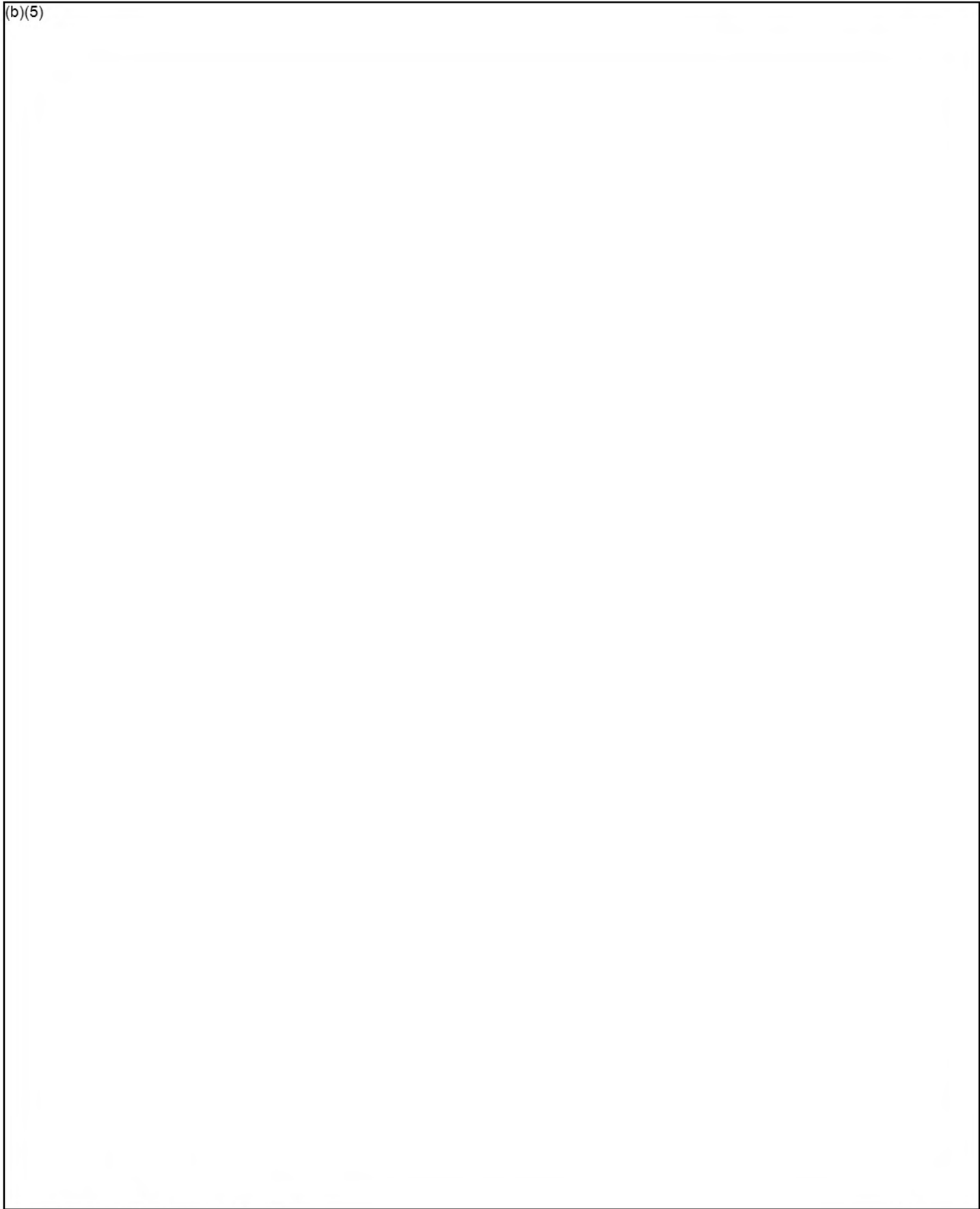
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Amida Technology Solutions, Inc.
September 14, 2017

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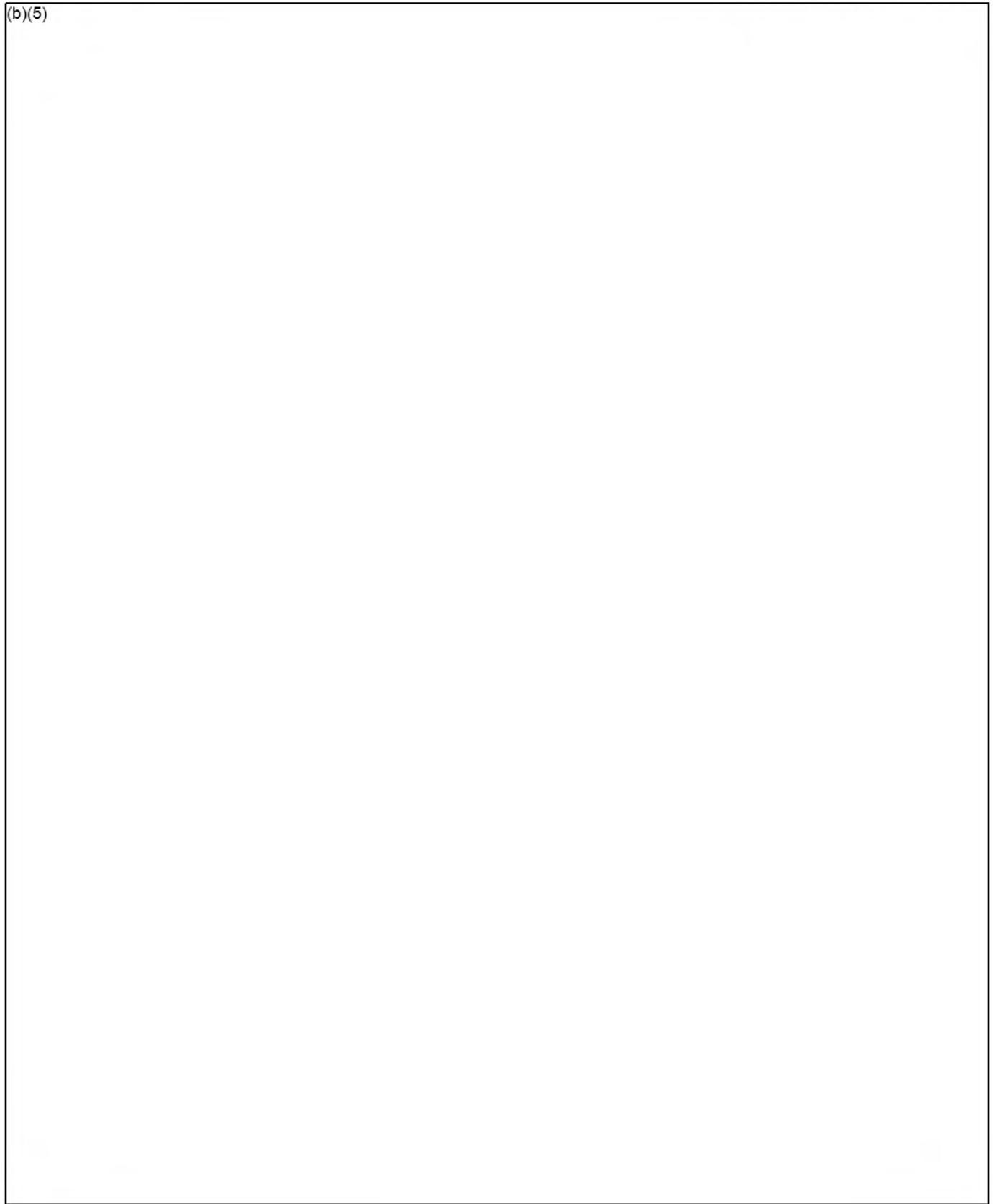
VA-18-0298 and VA-18-0299-H-000618

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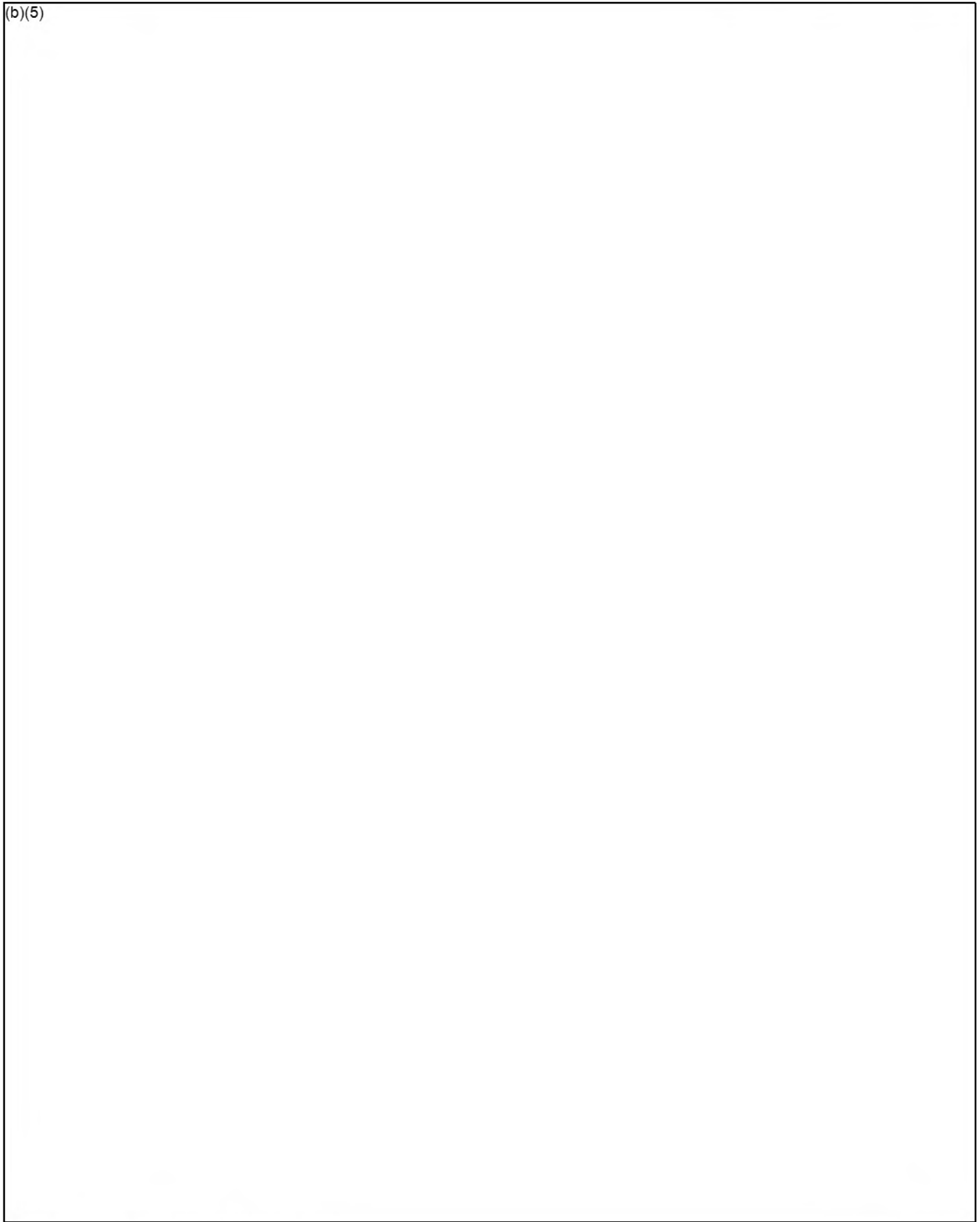
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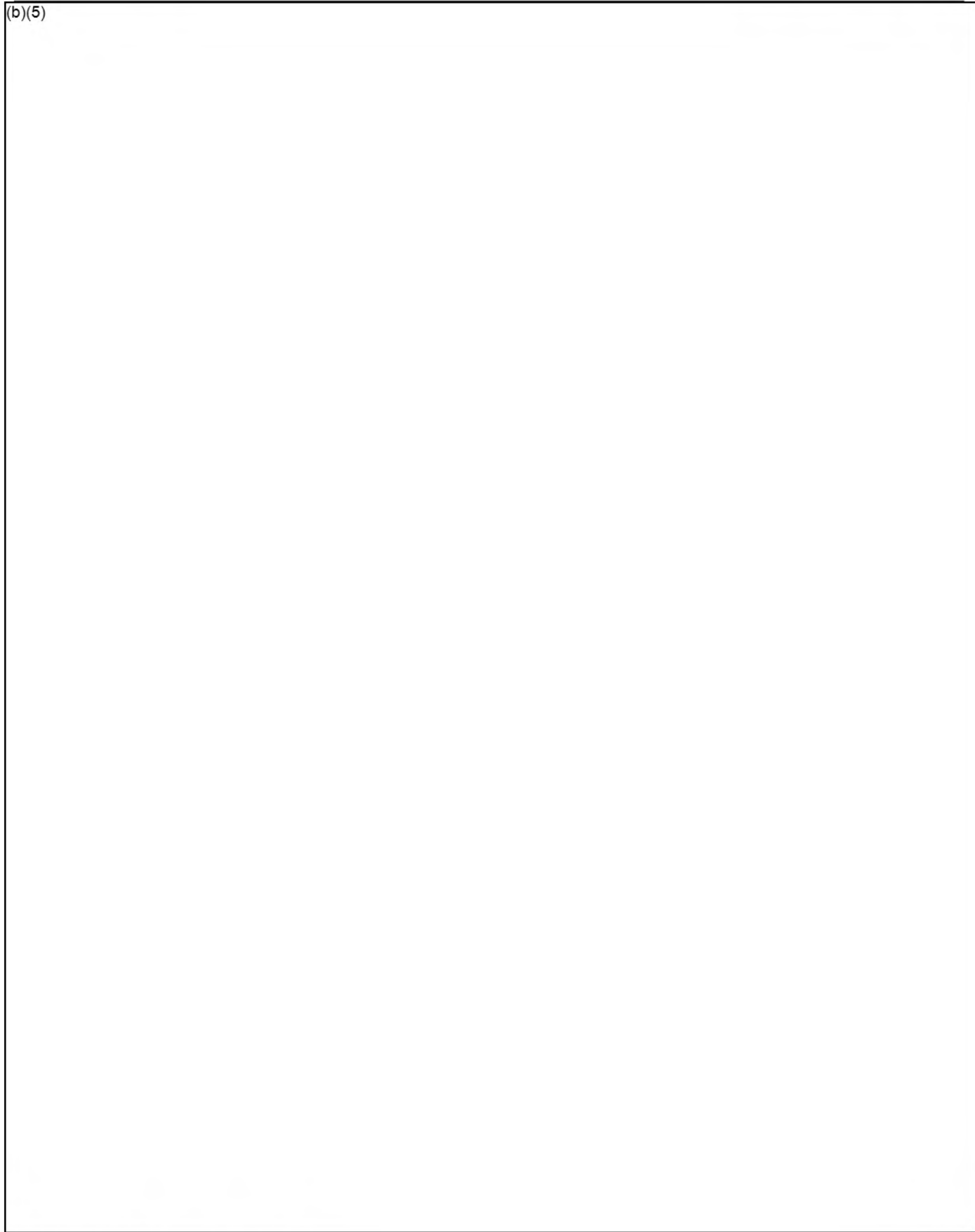
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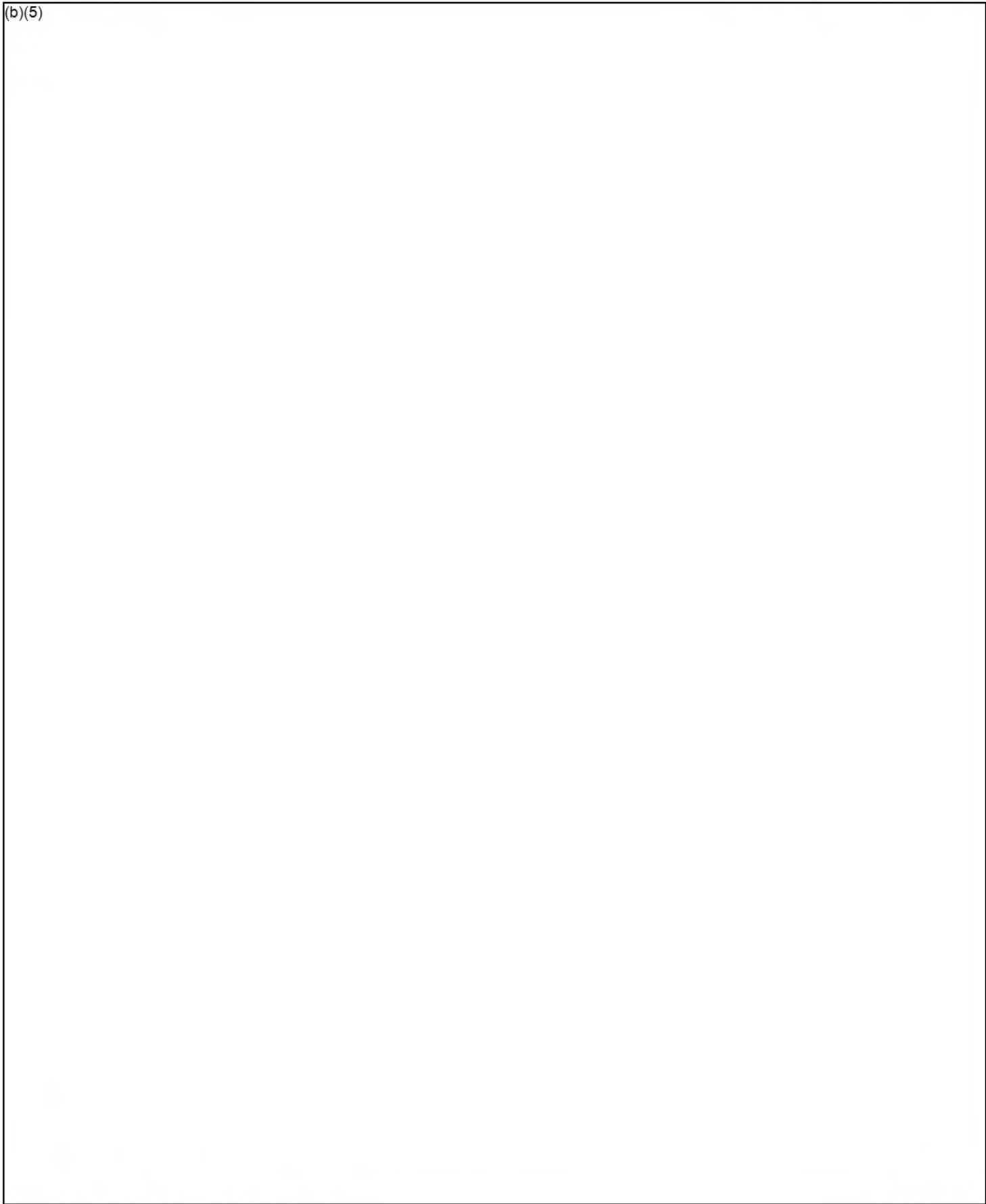
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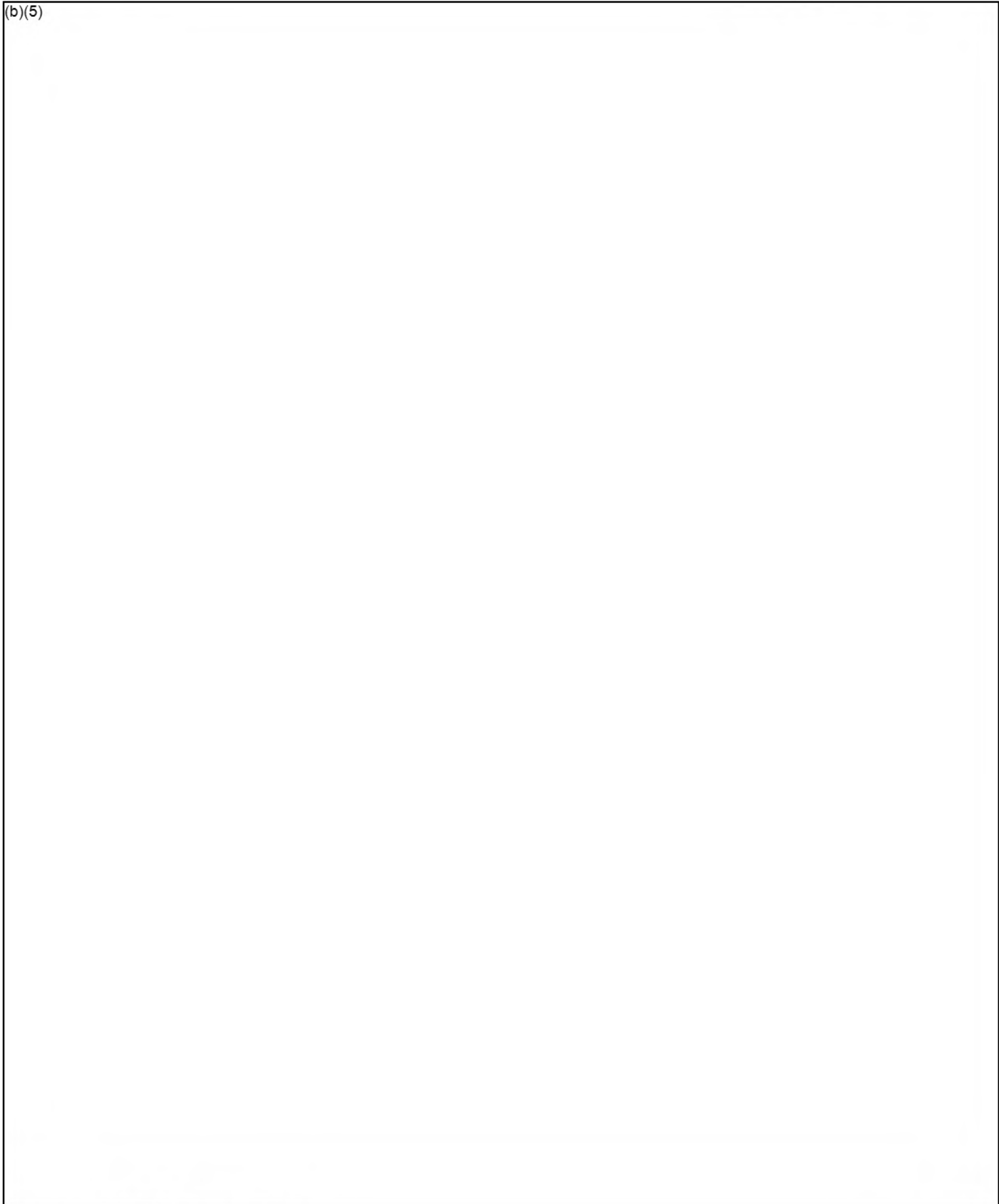
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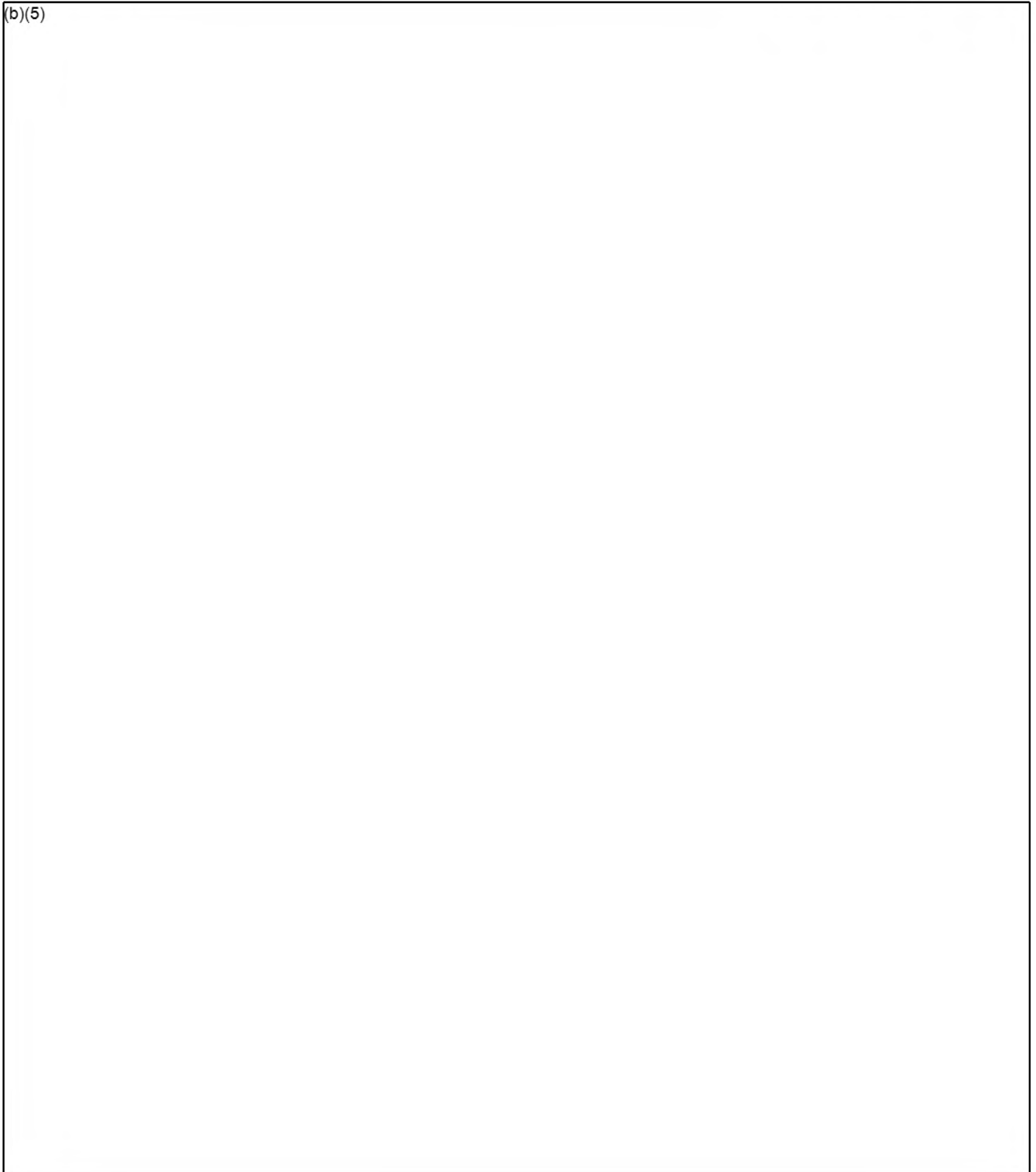
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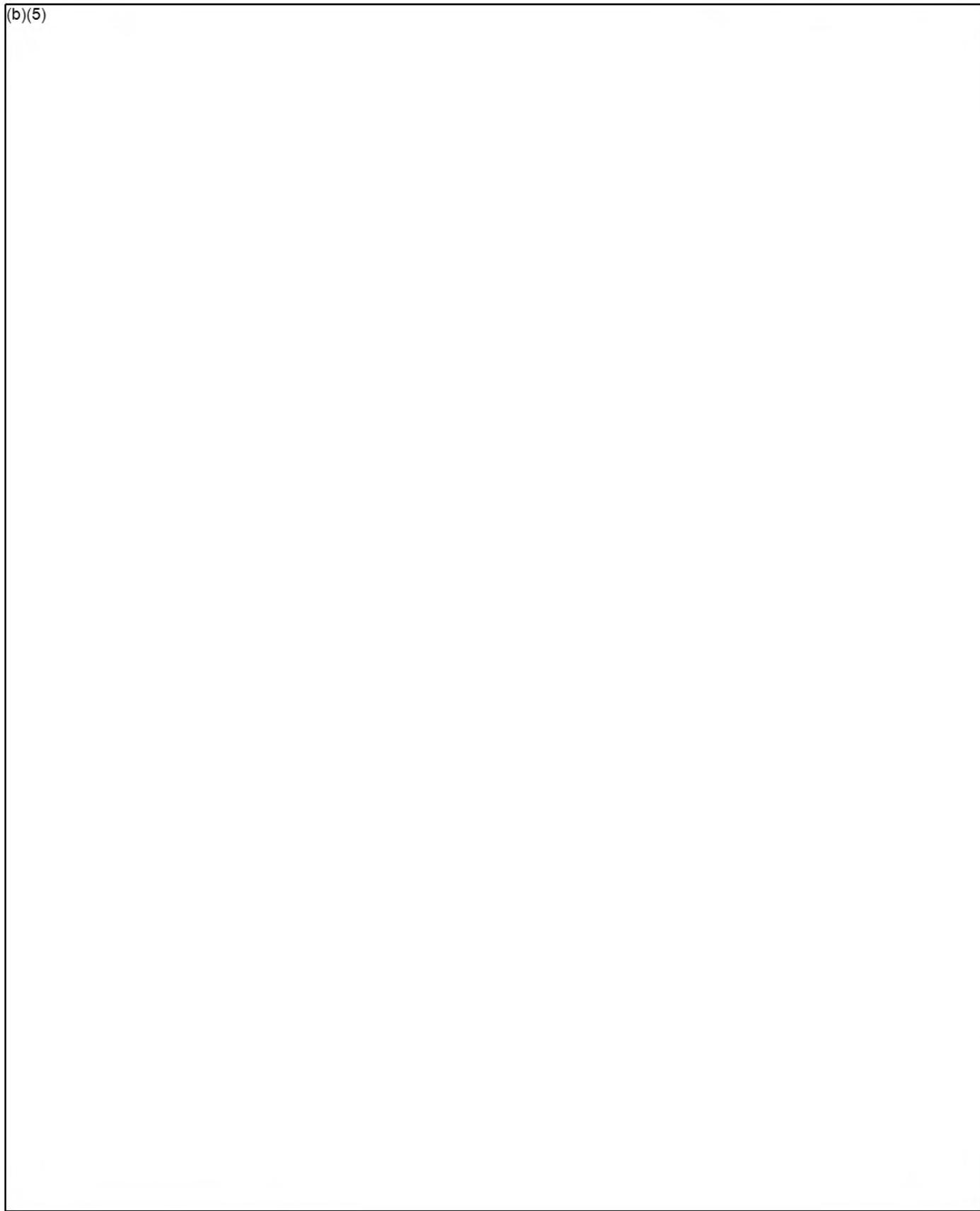
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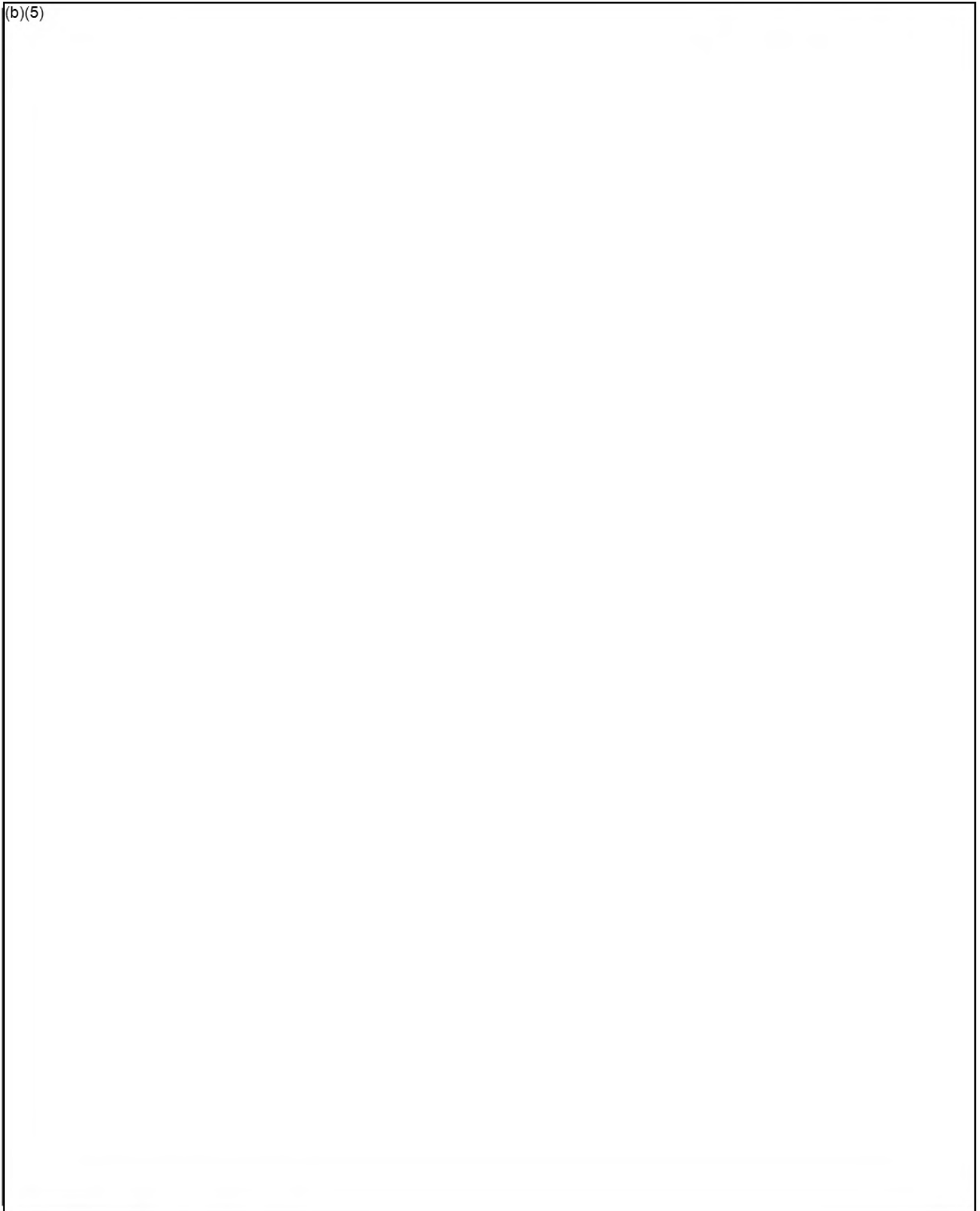


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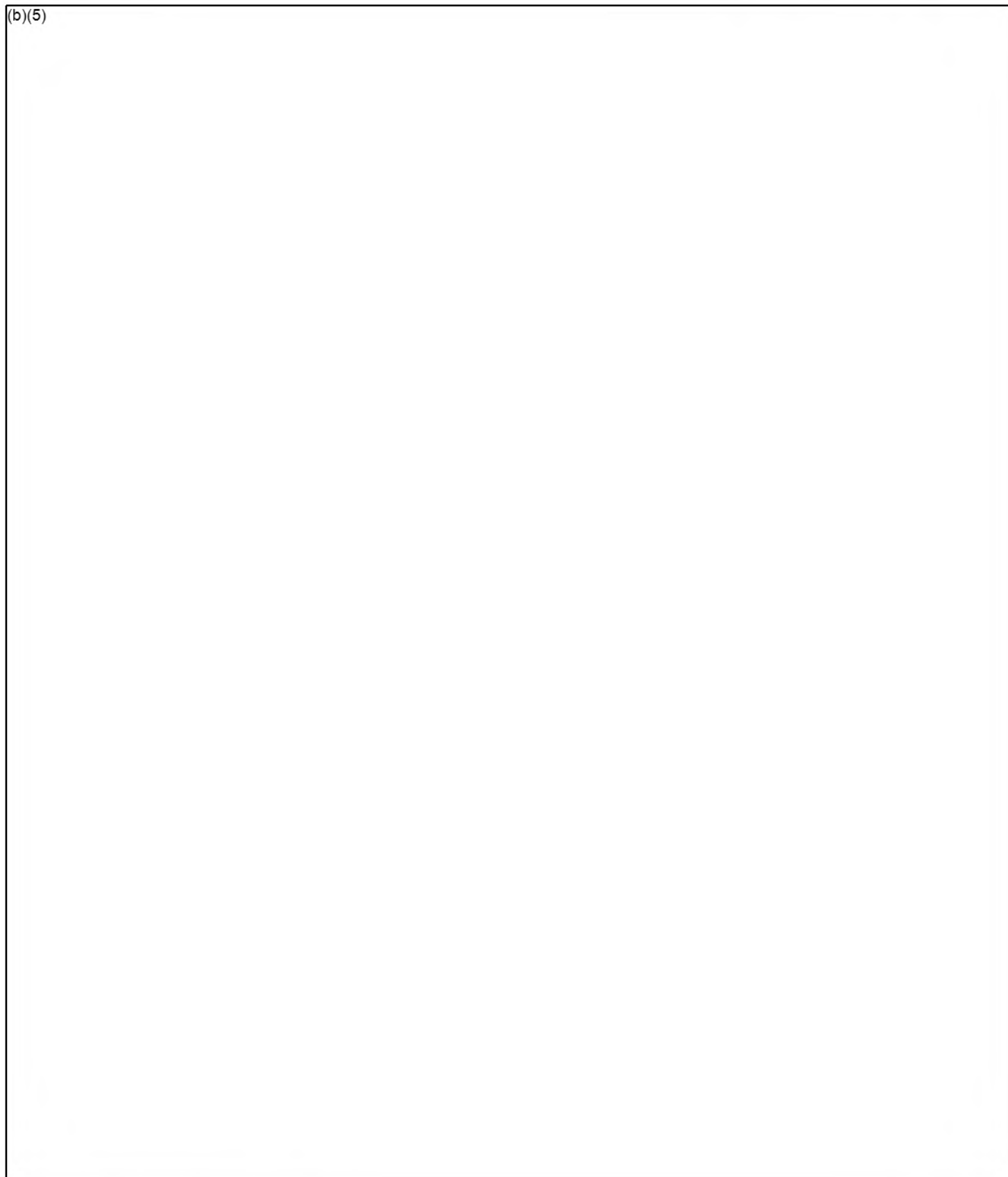
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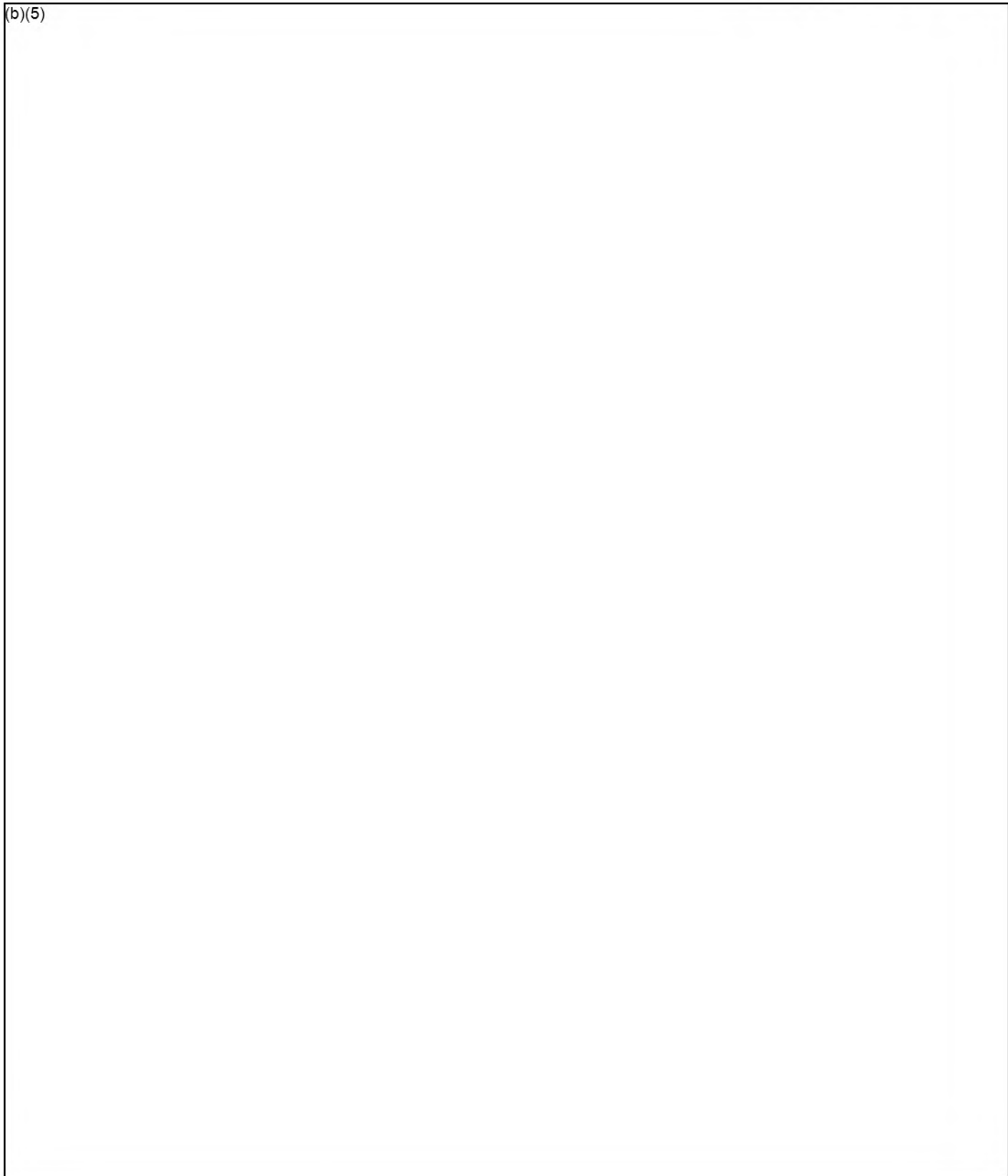
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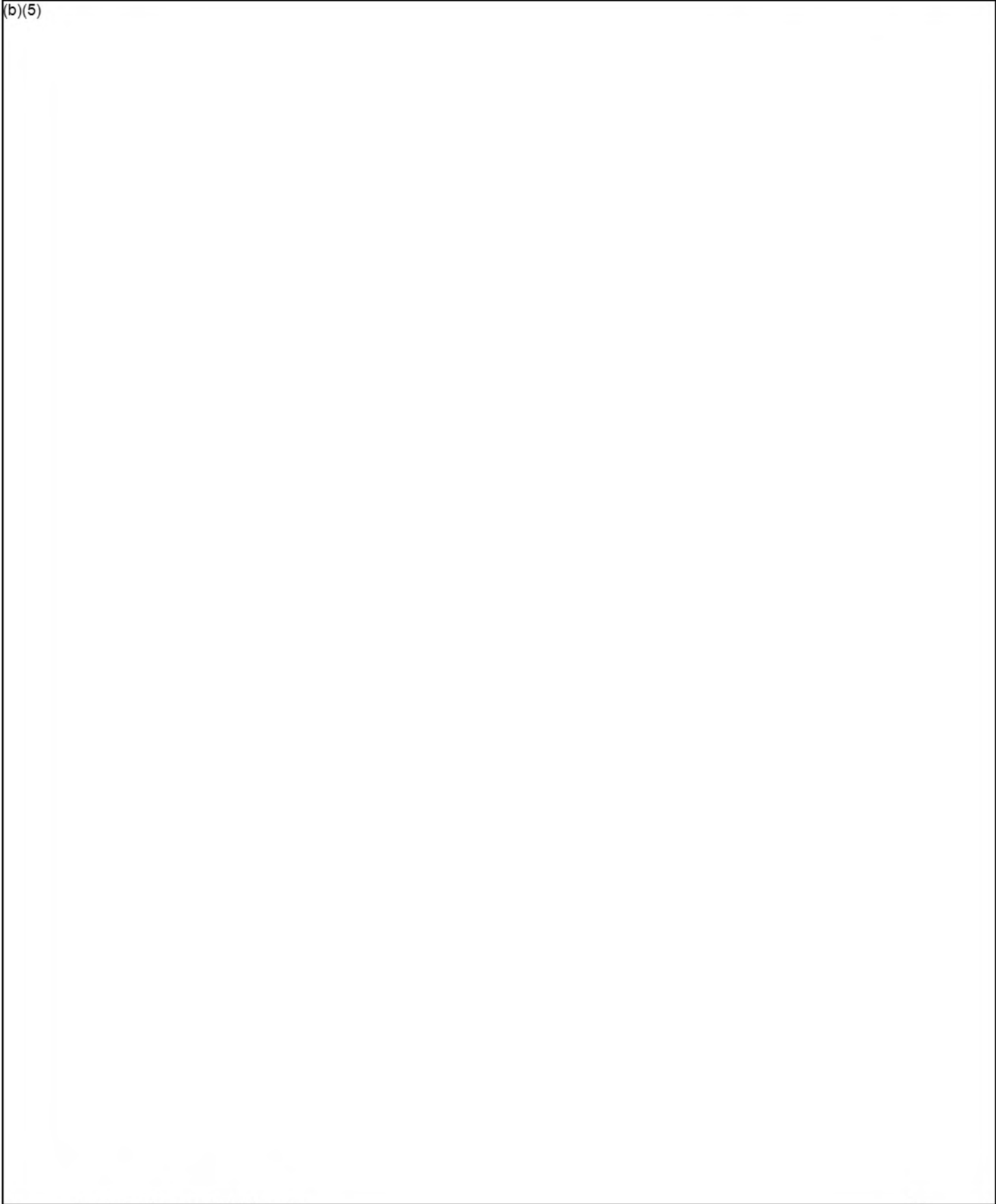
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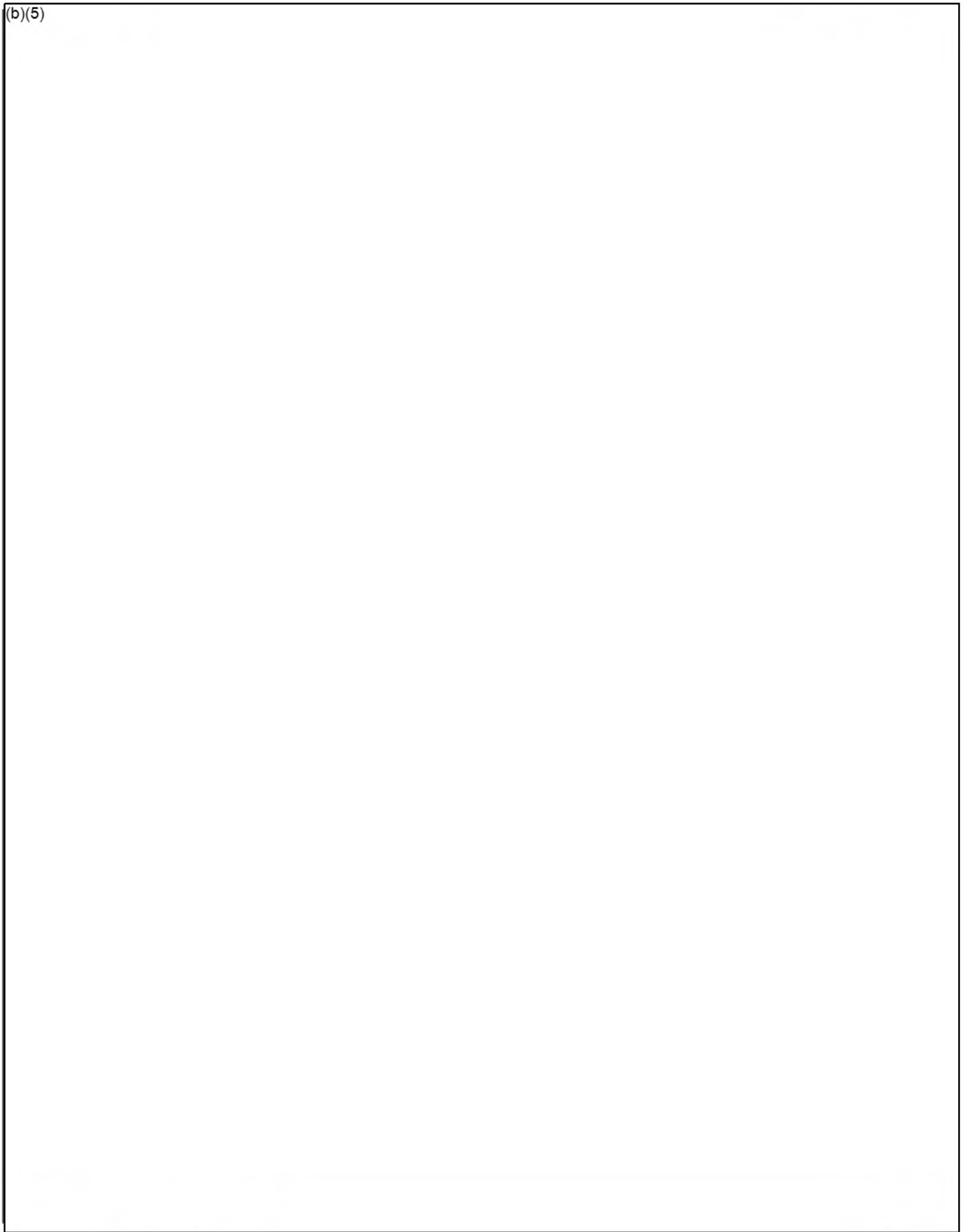


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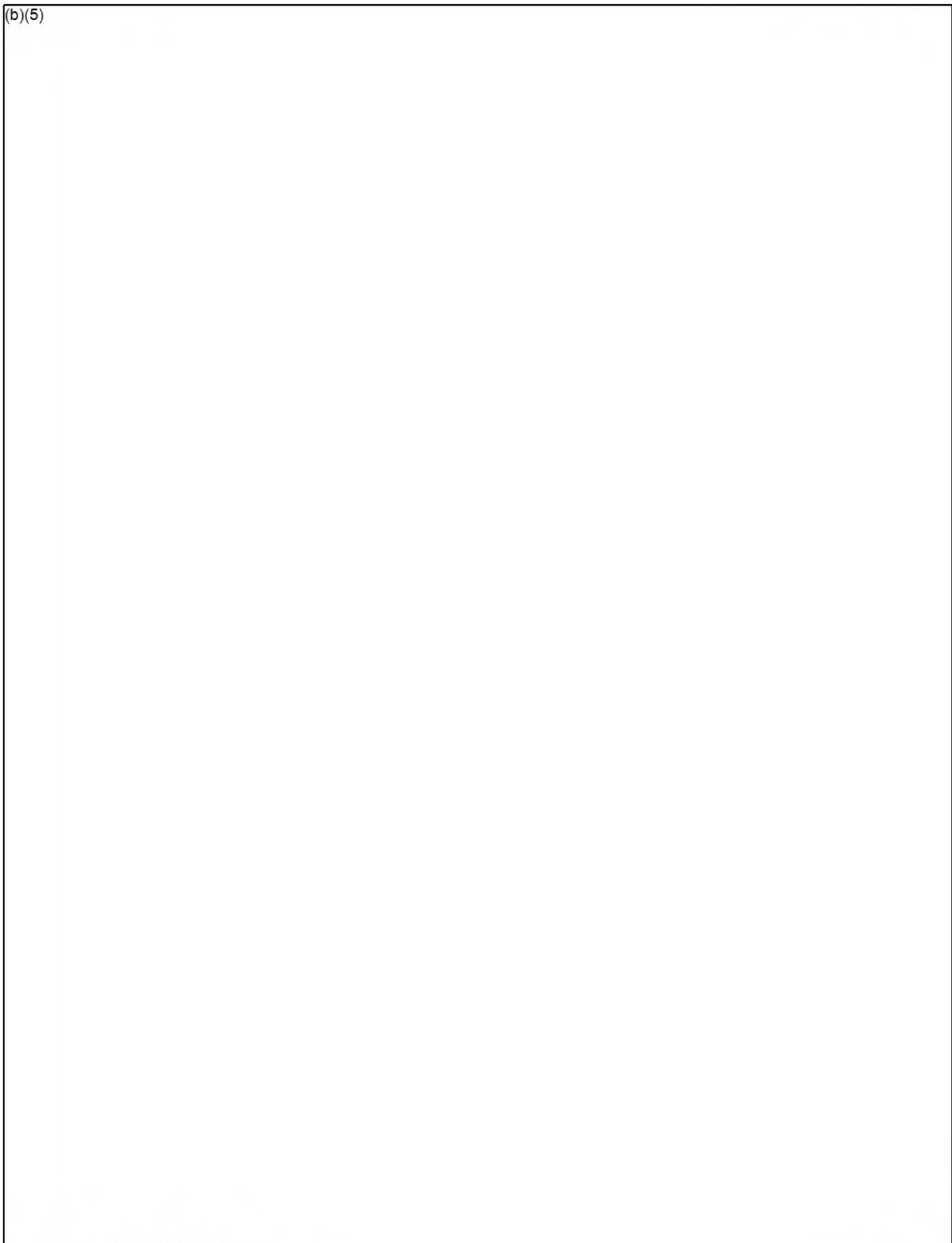


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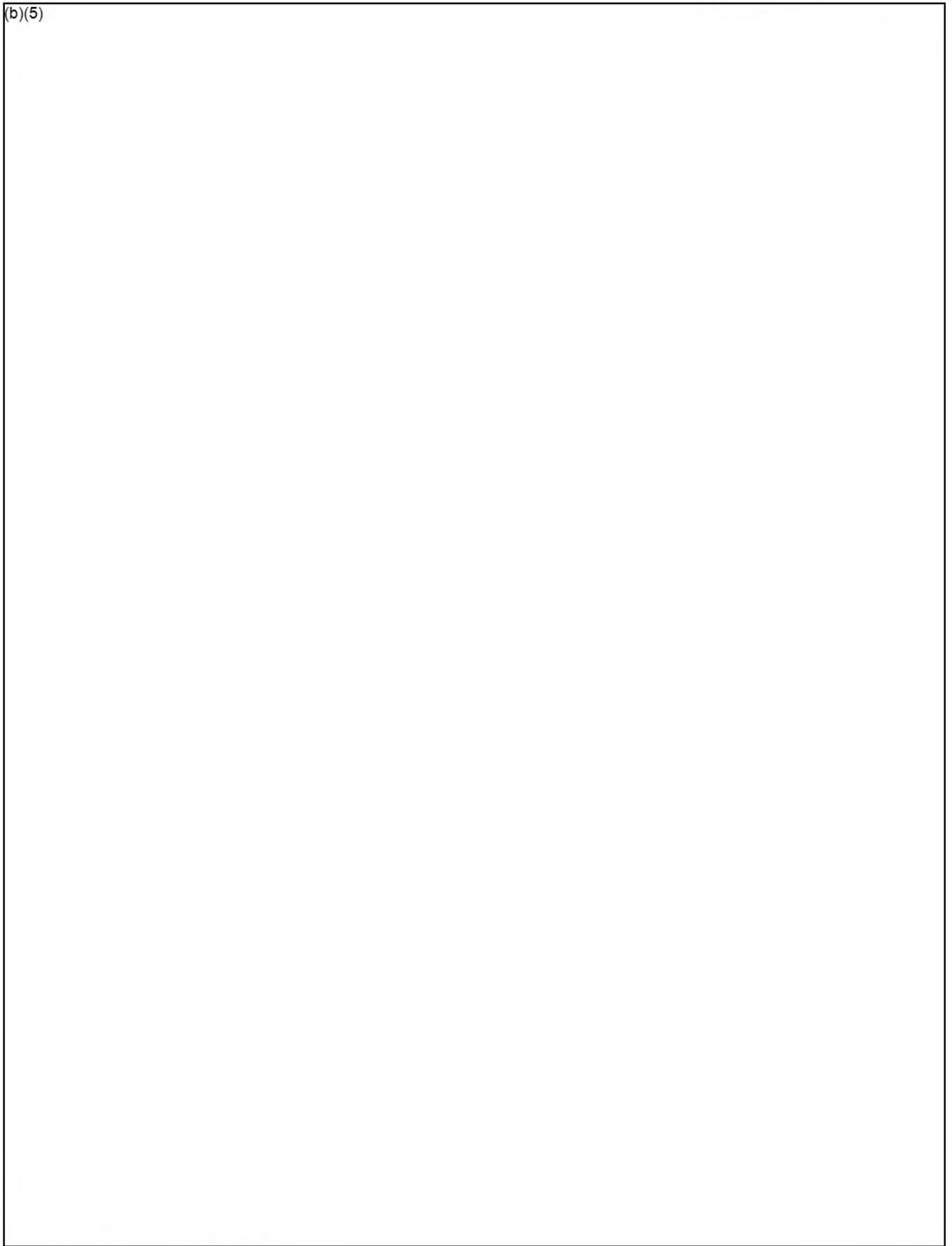
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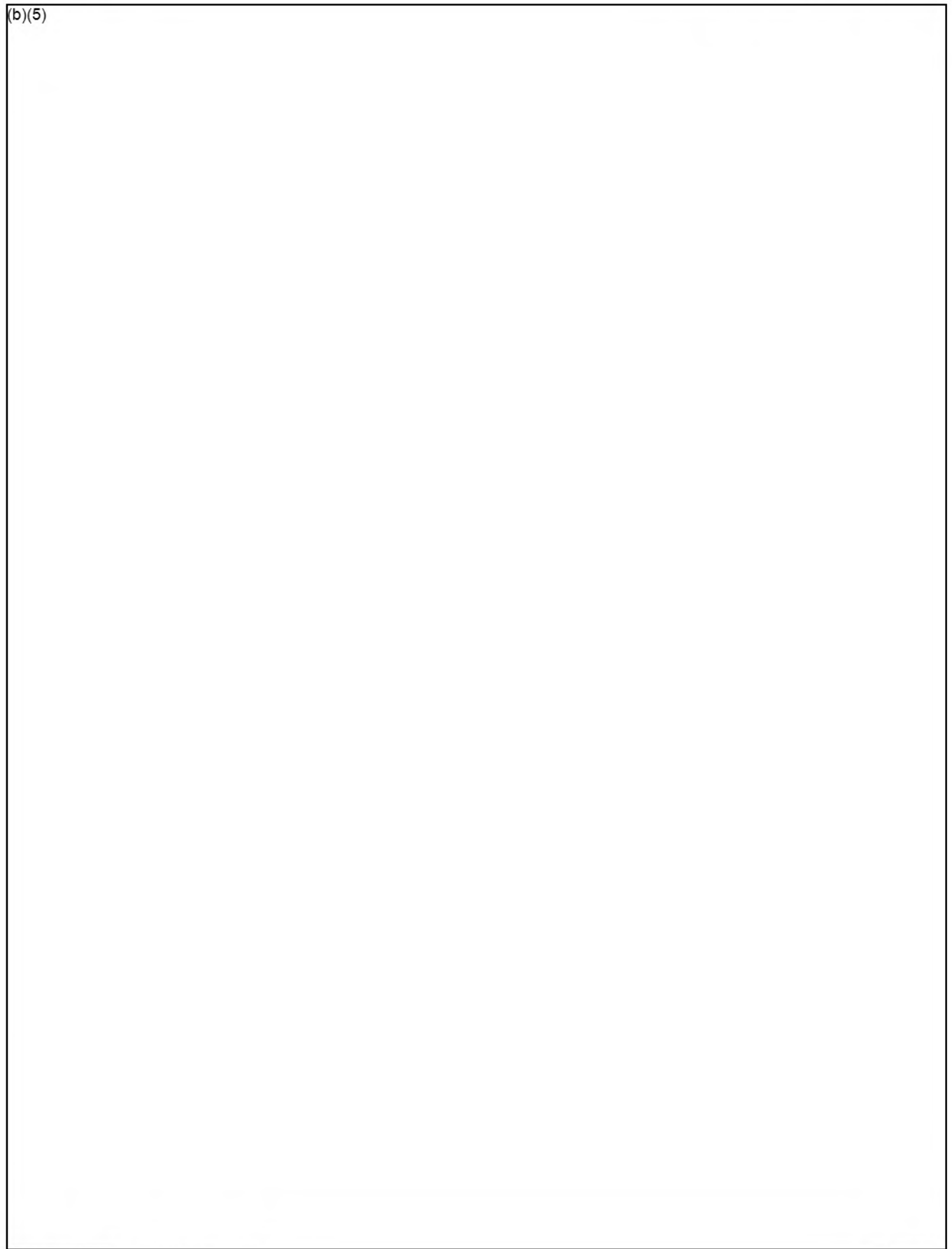
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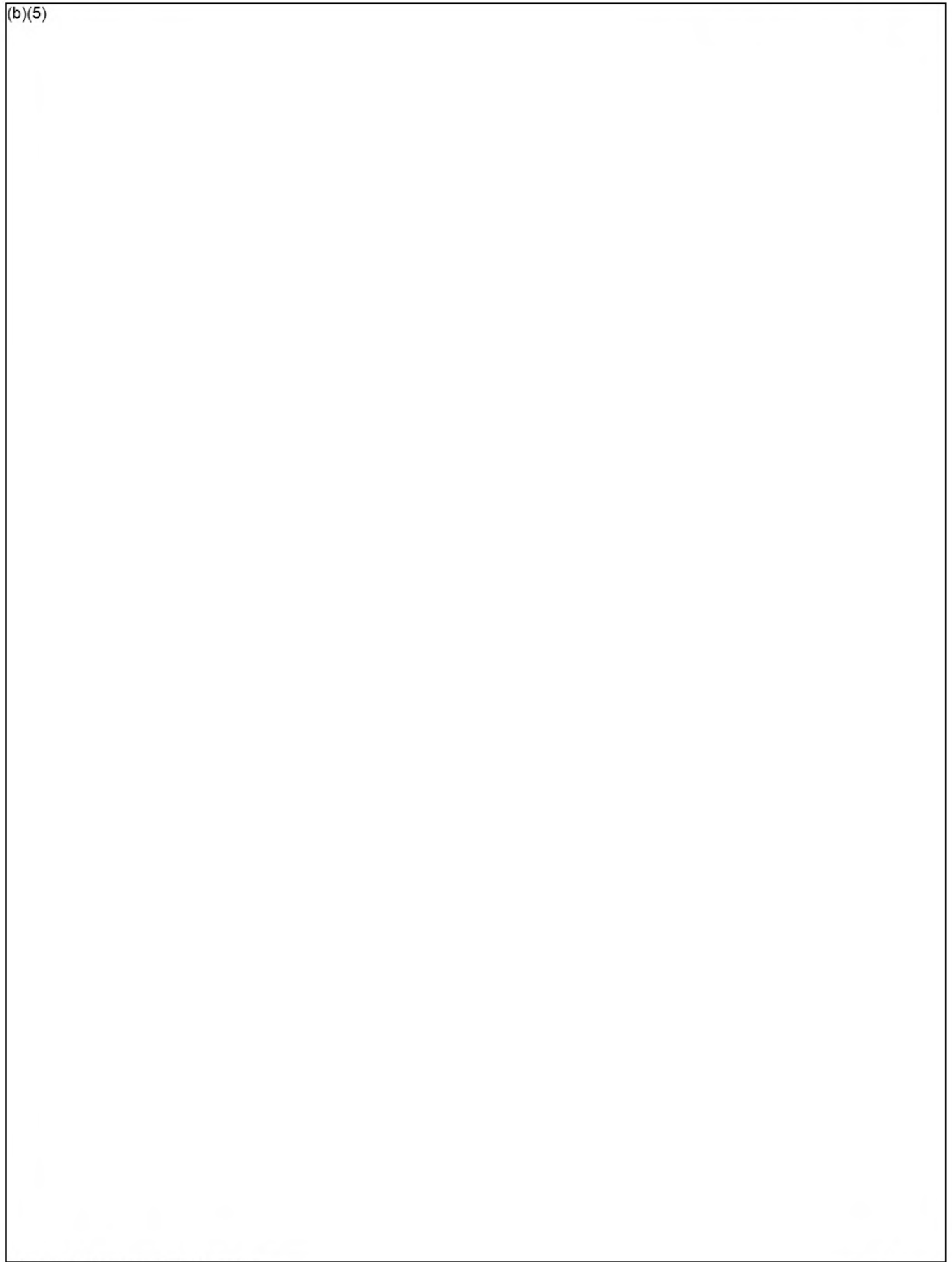
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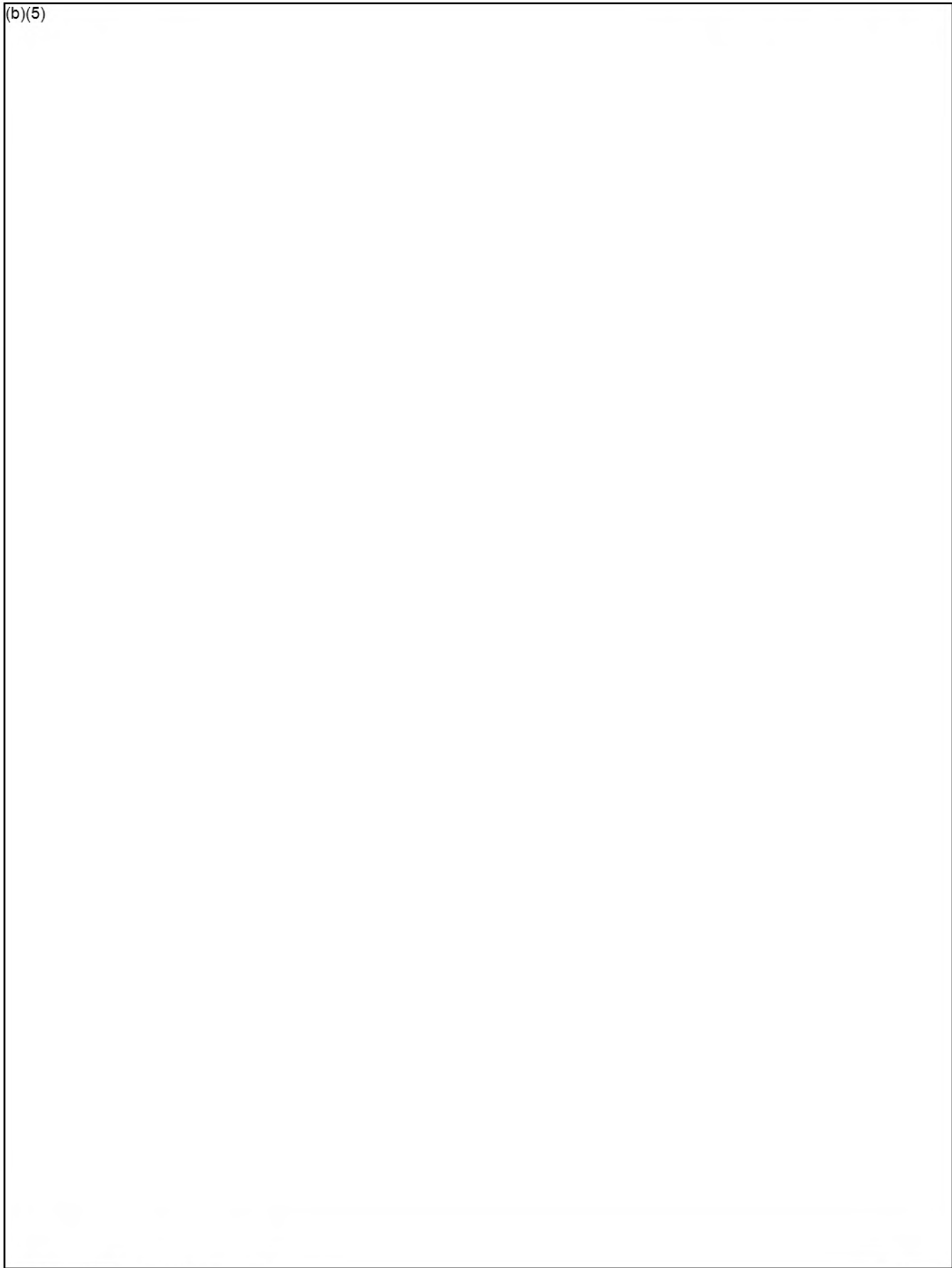
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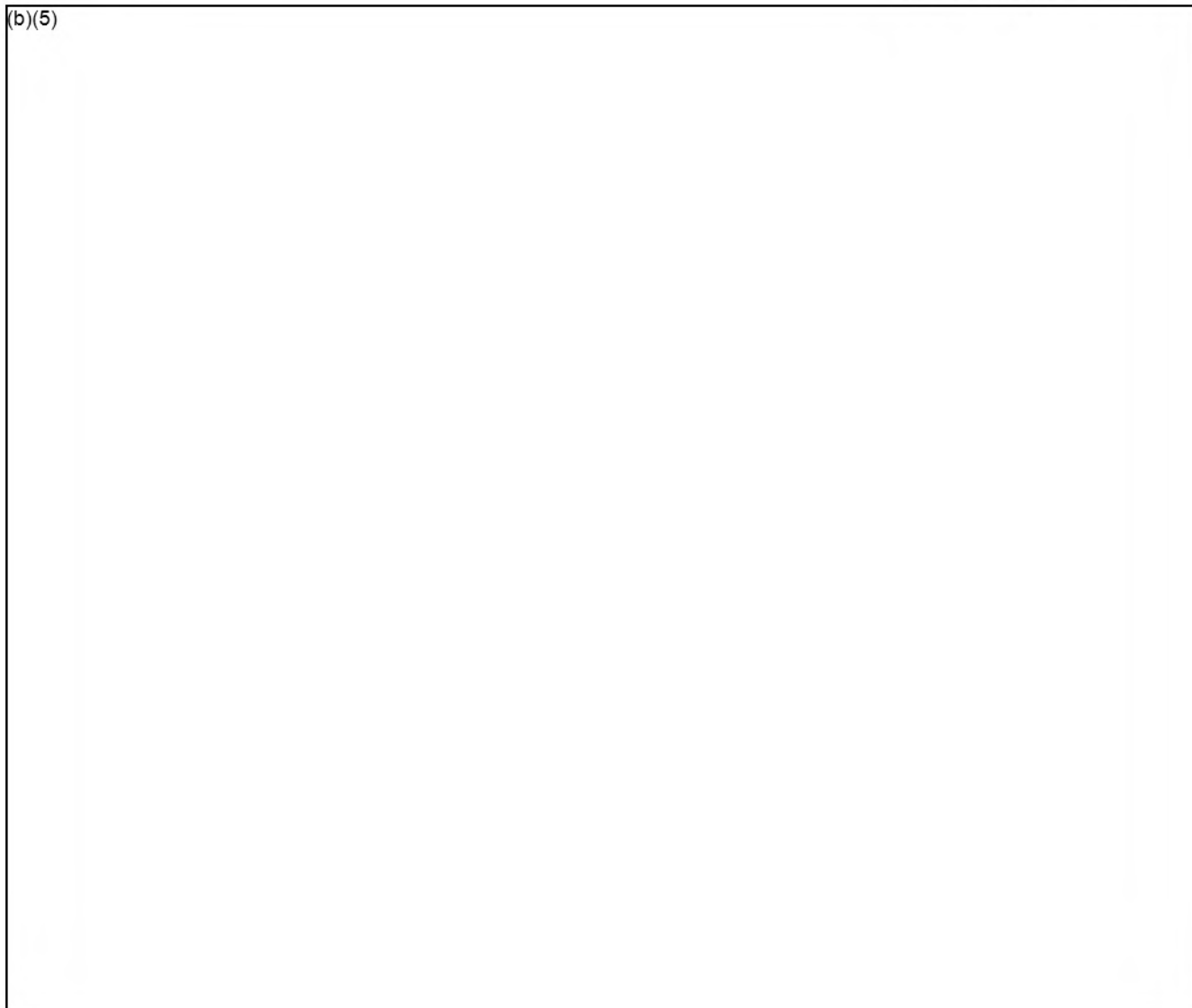
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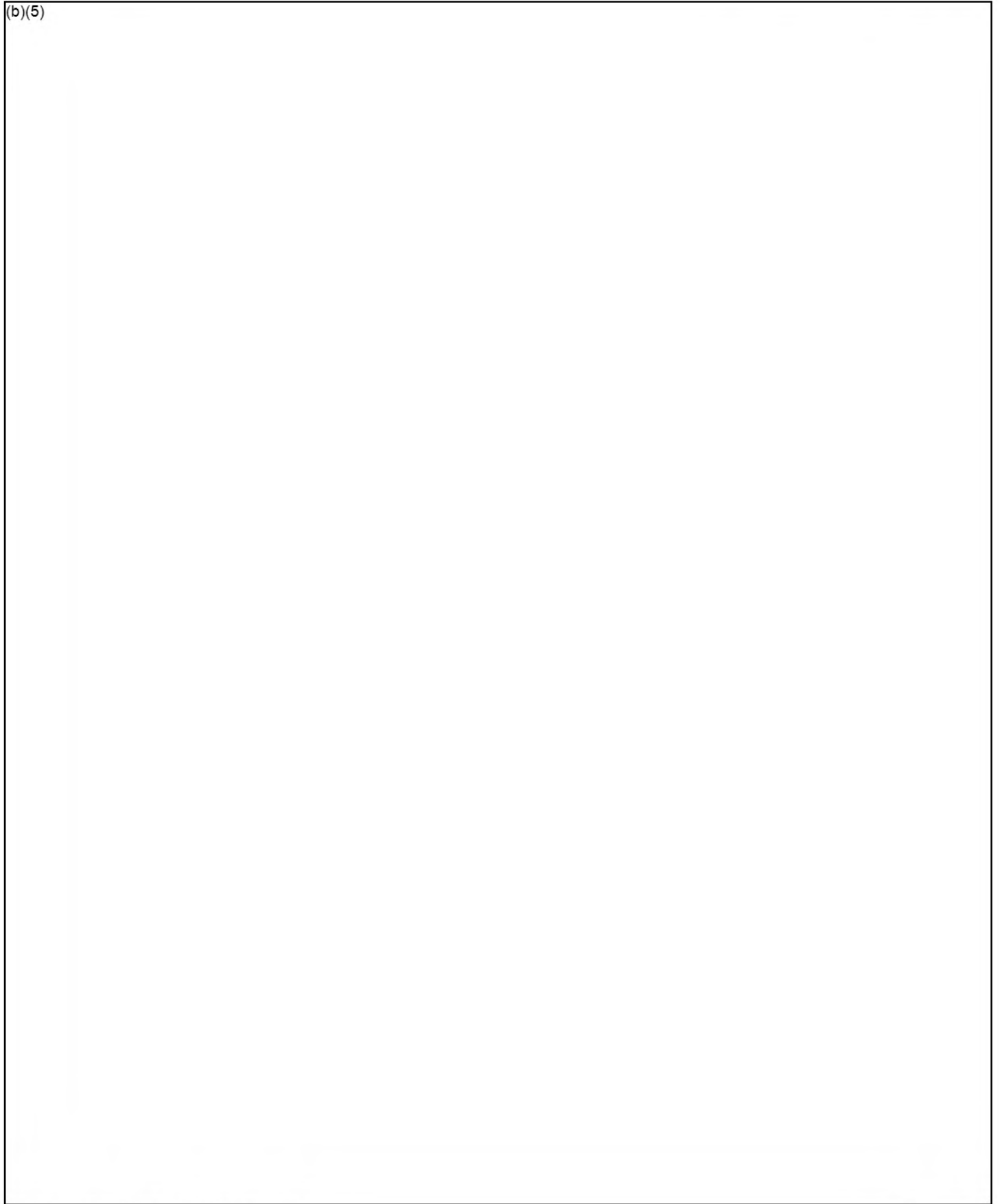
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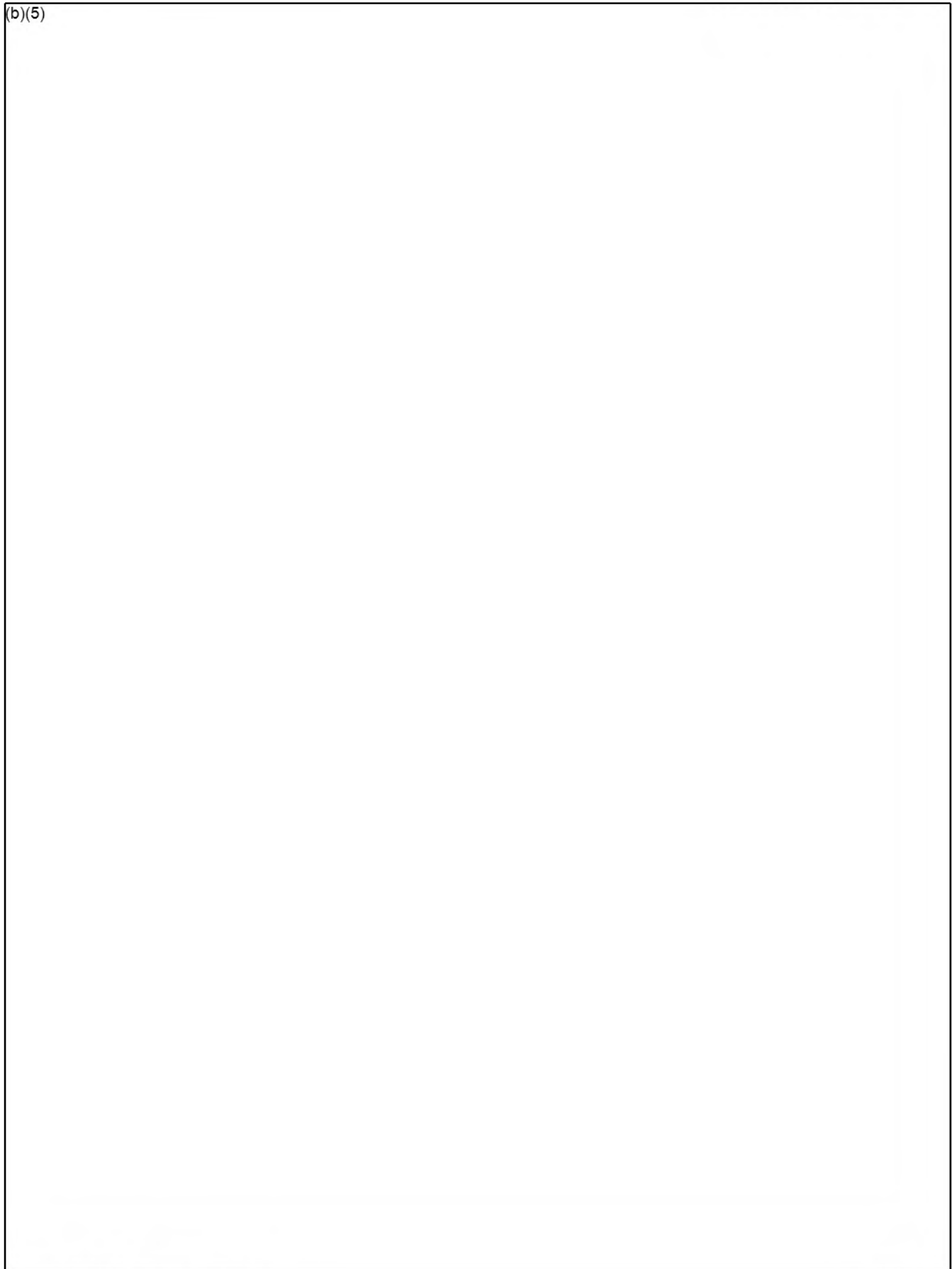
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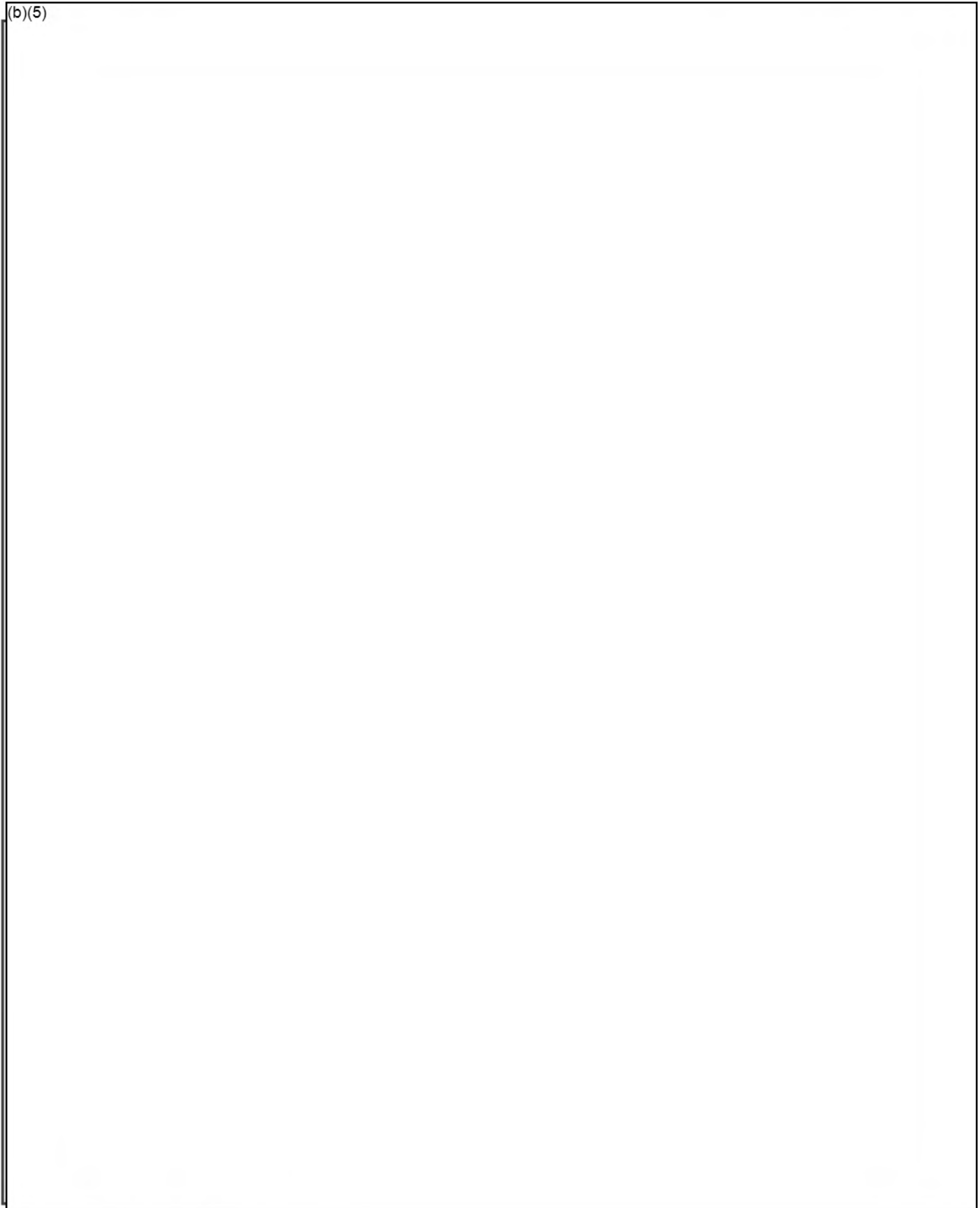
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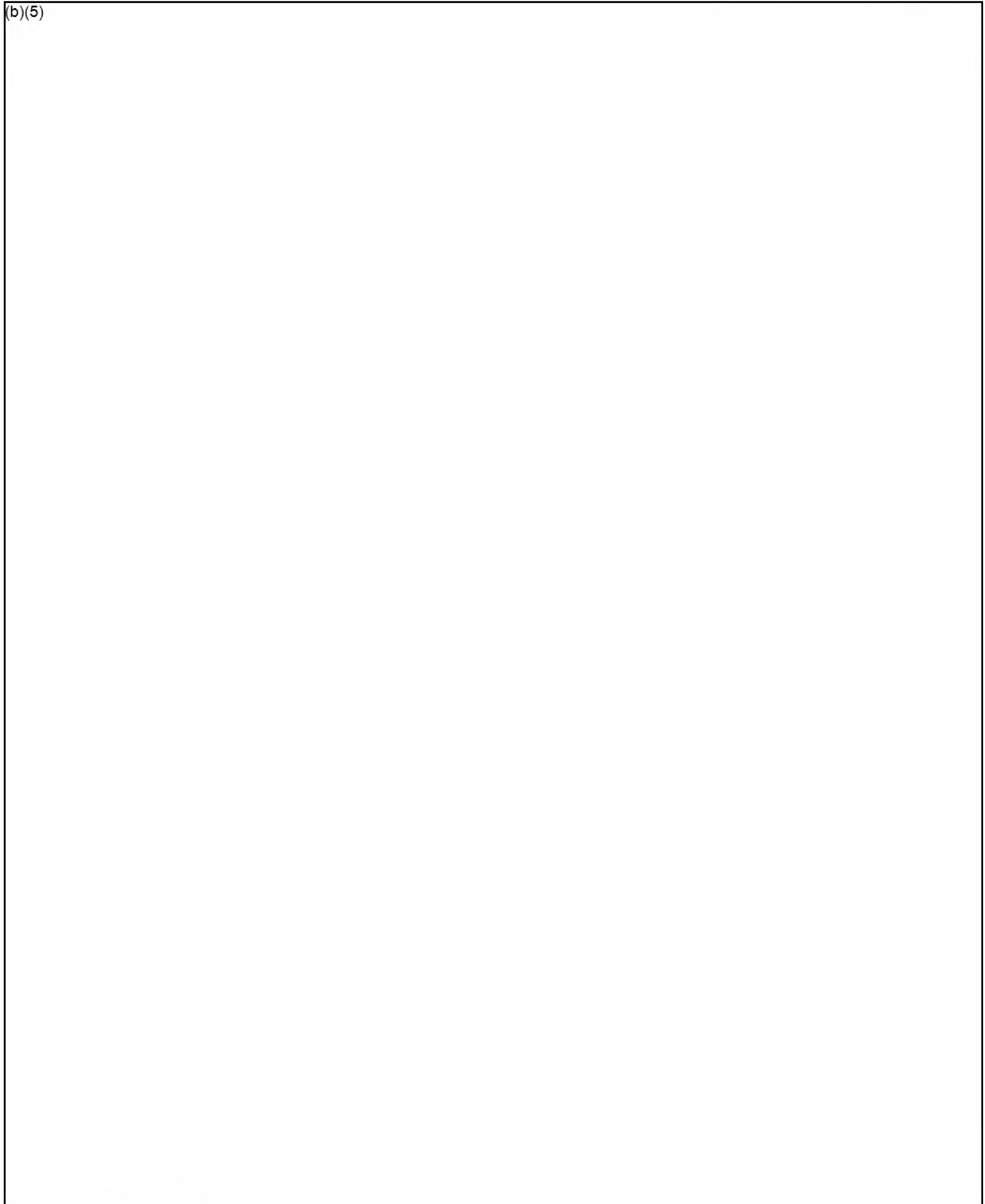
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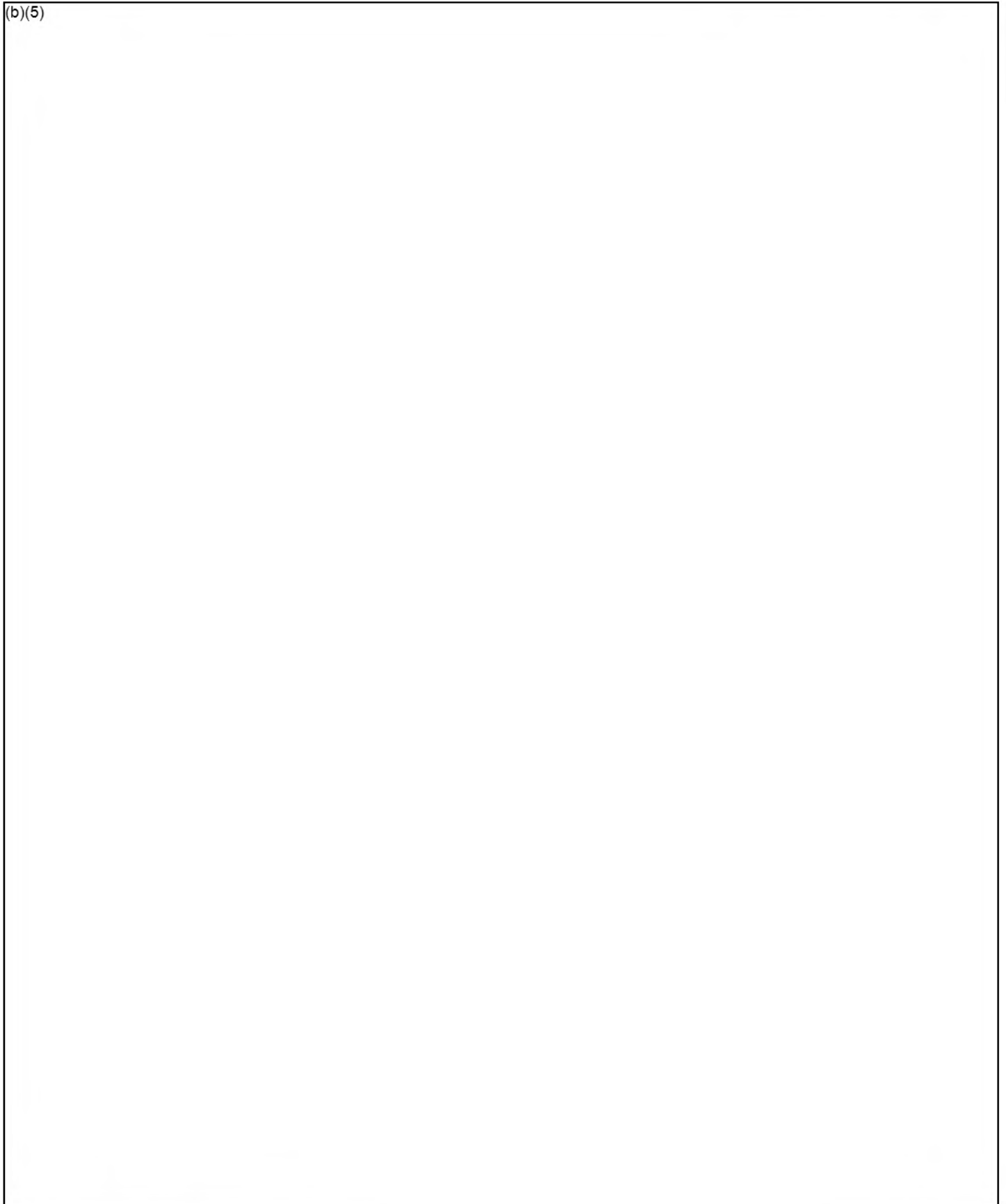
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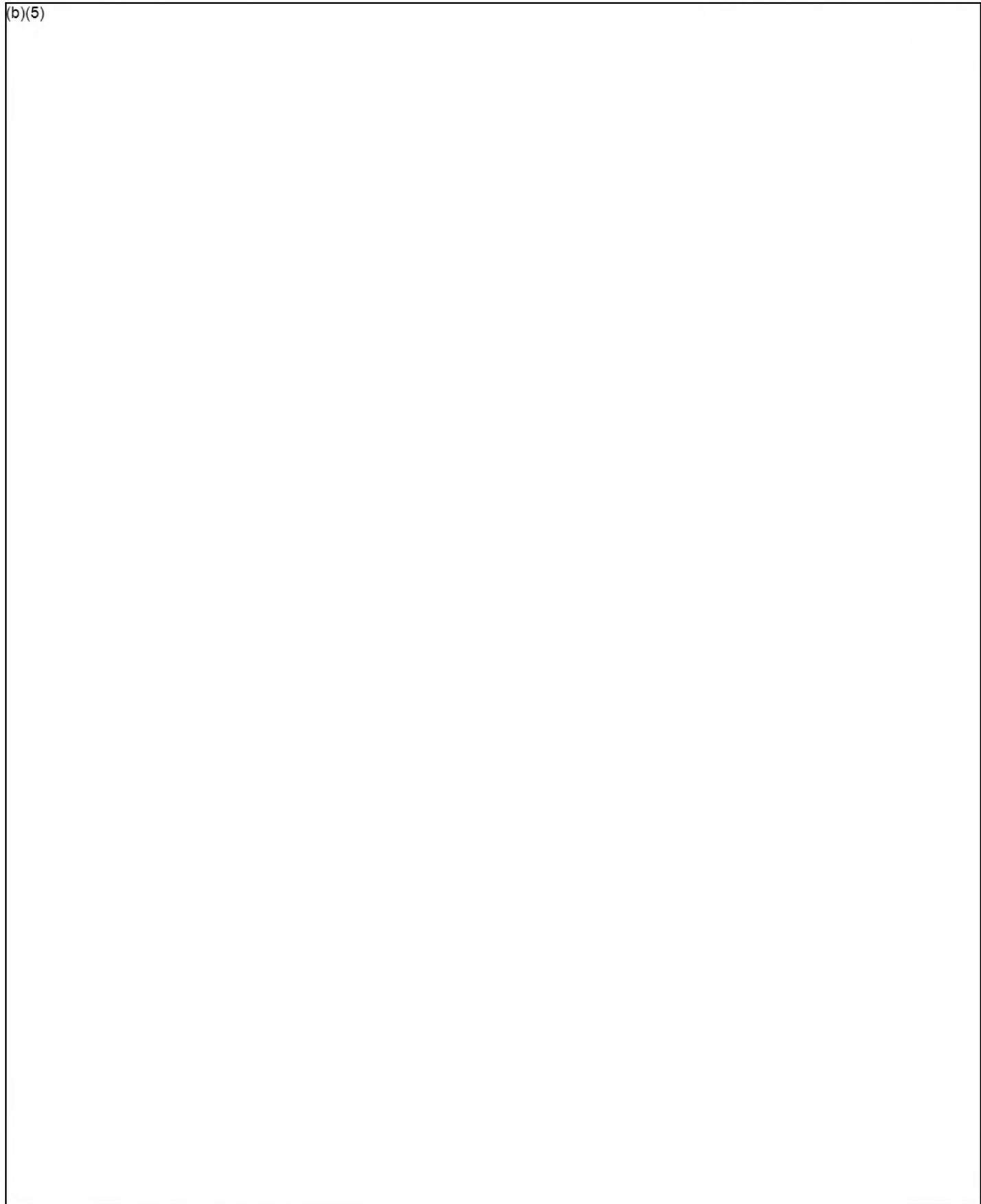
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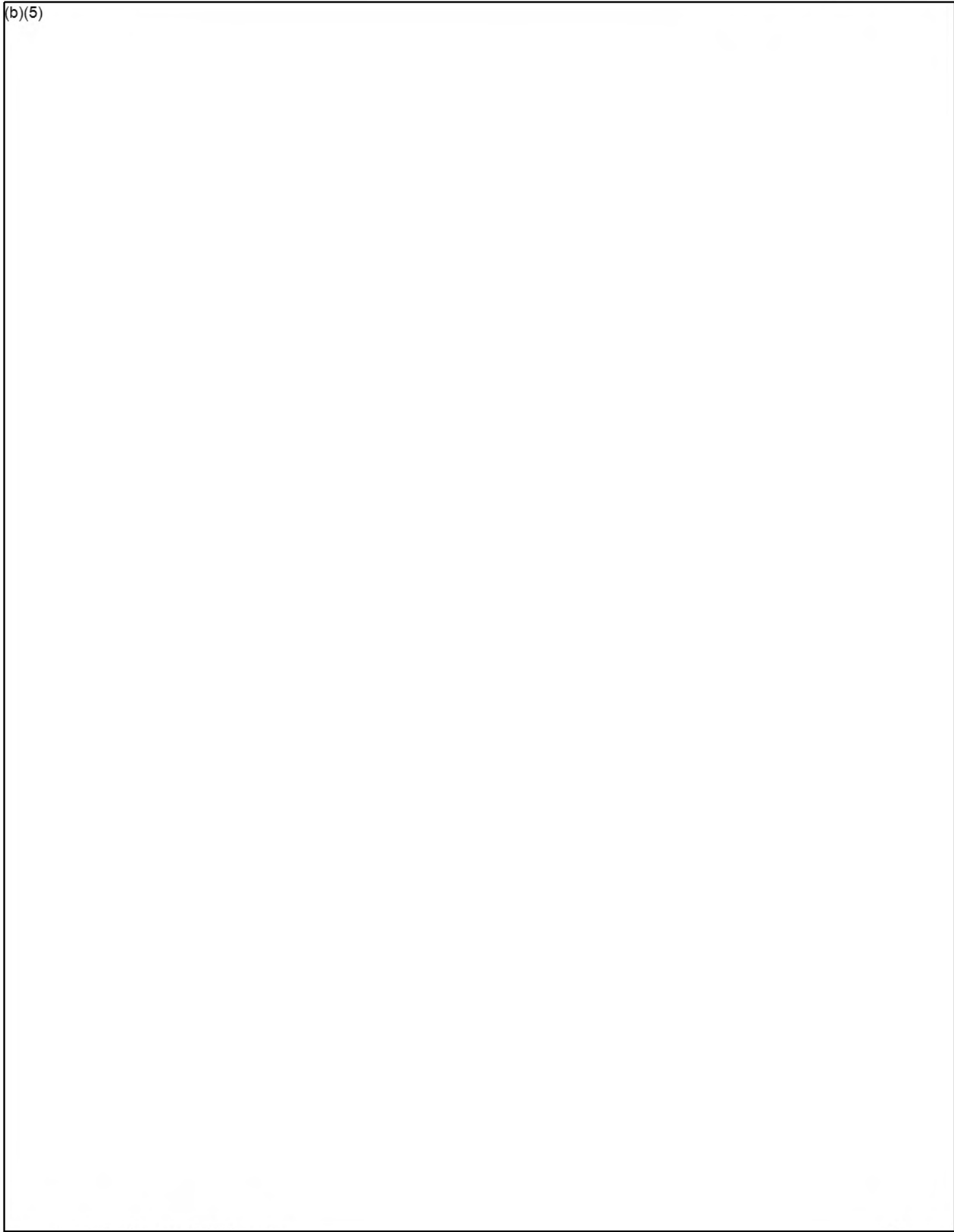
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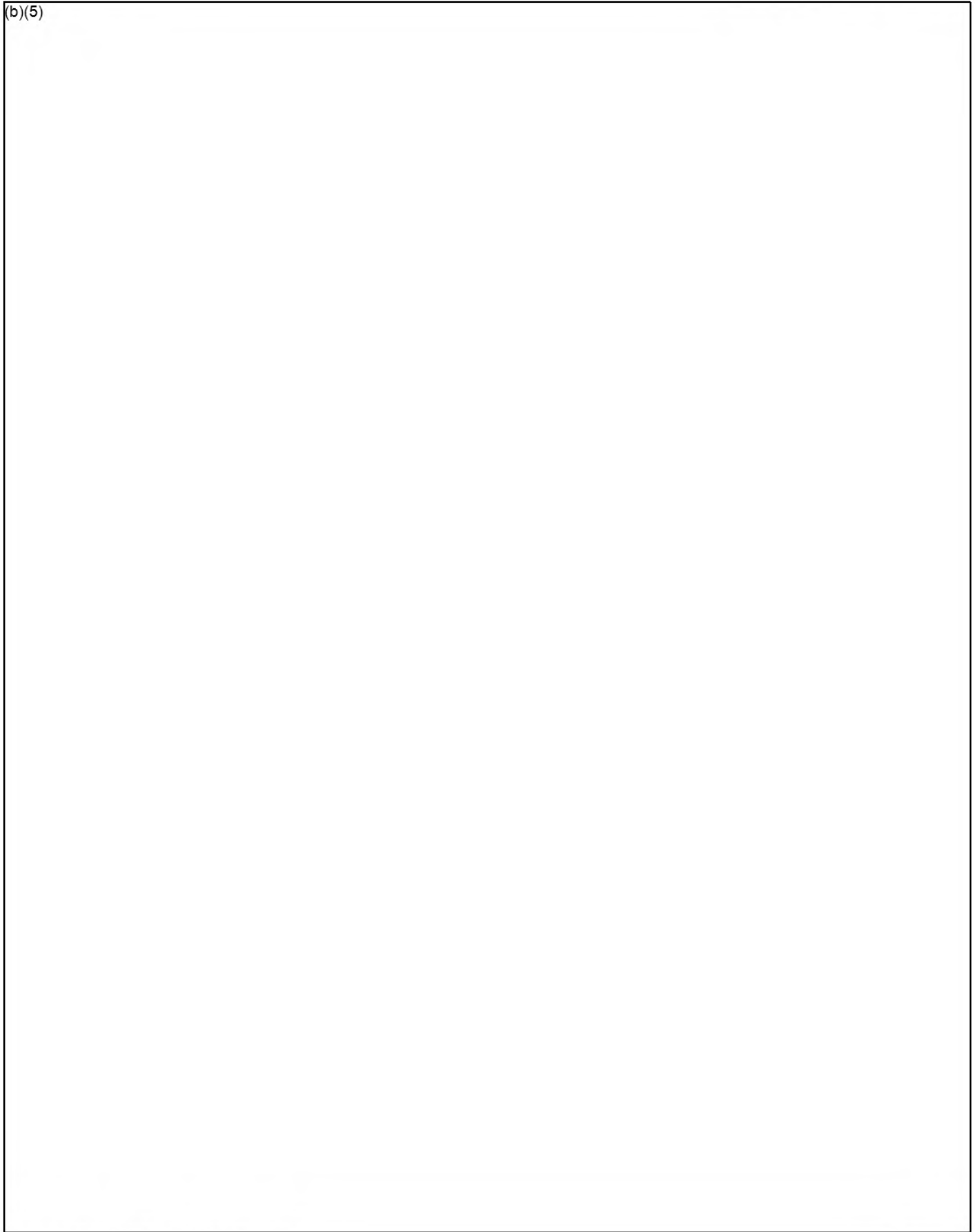
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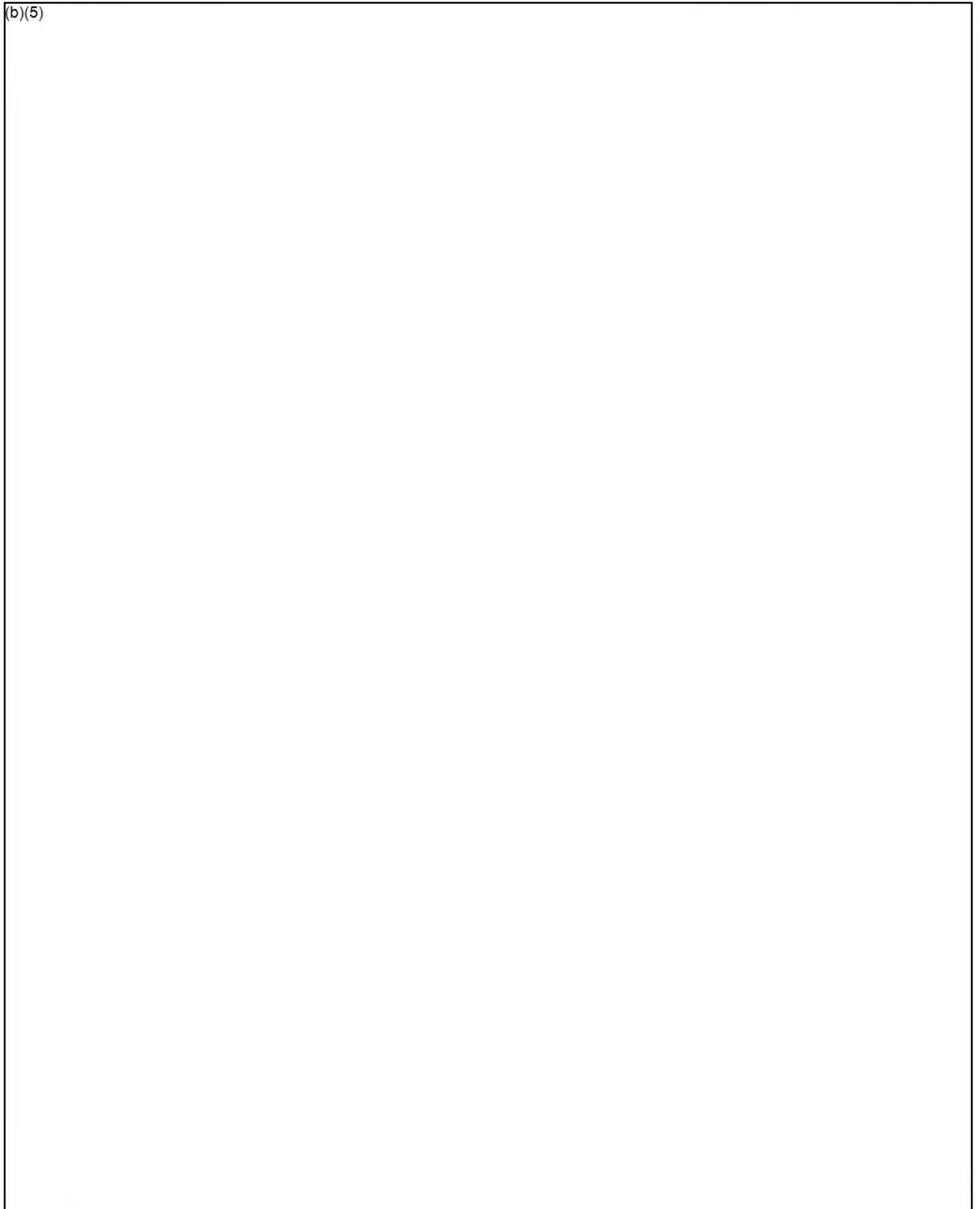
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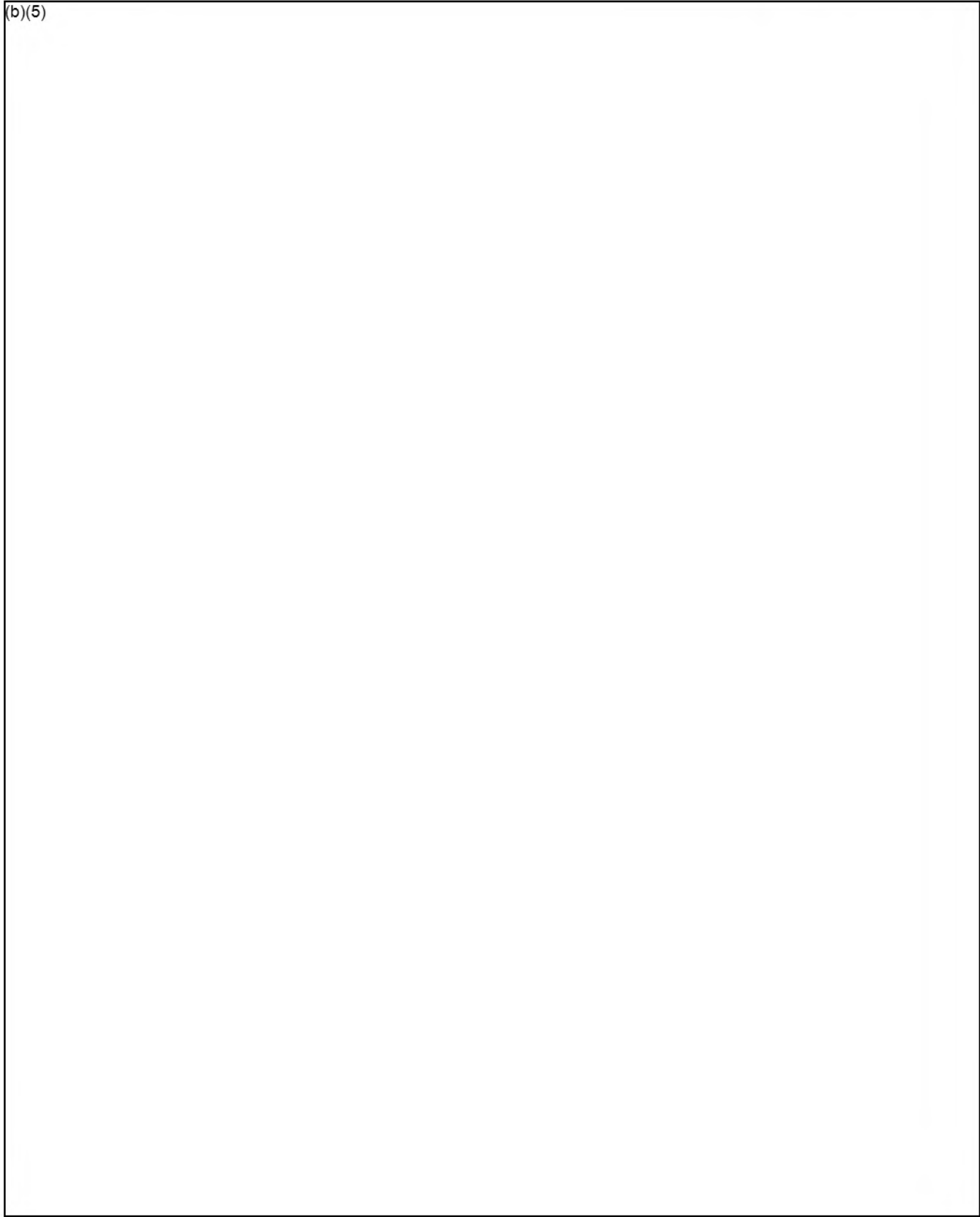
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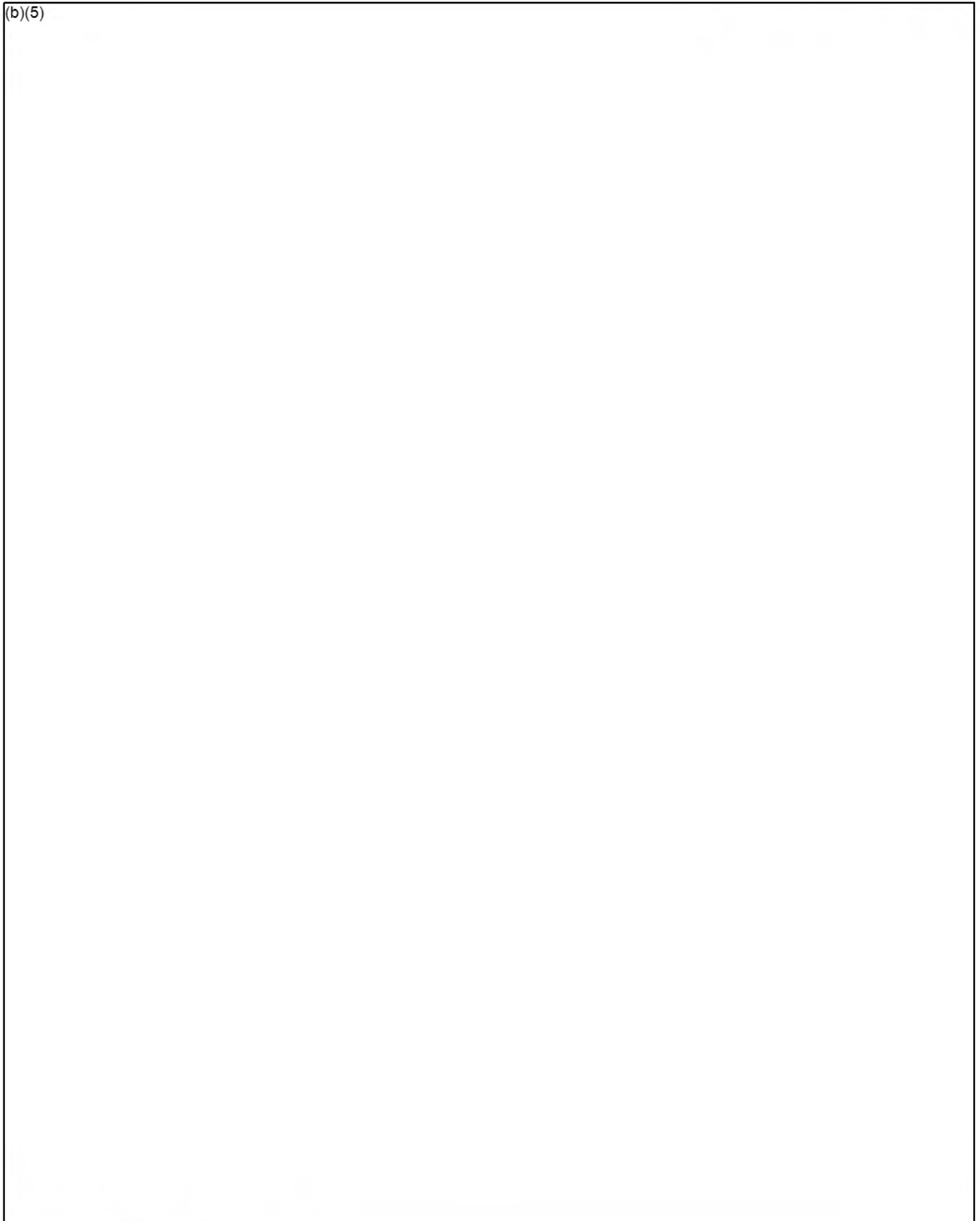
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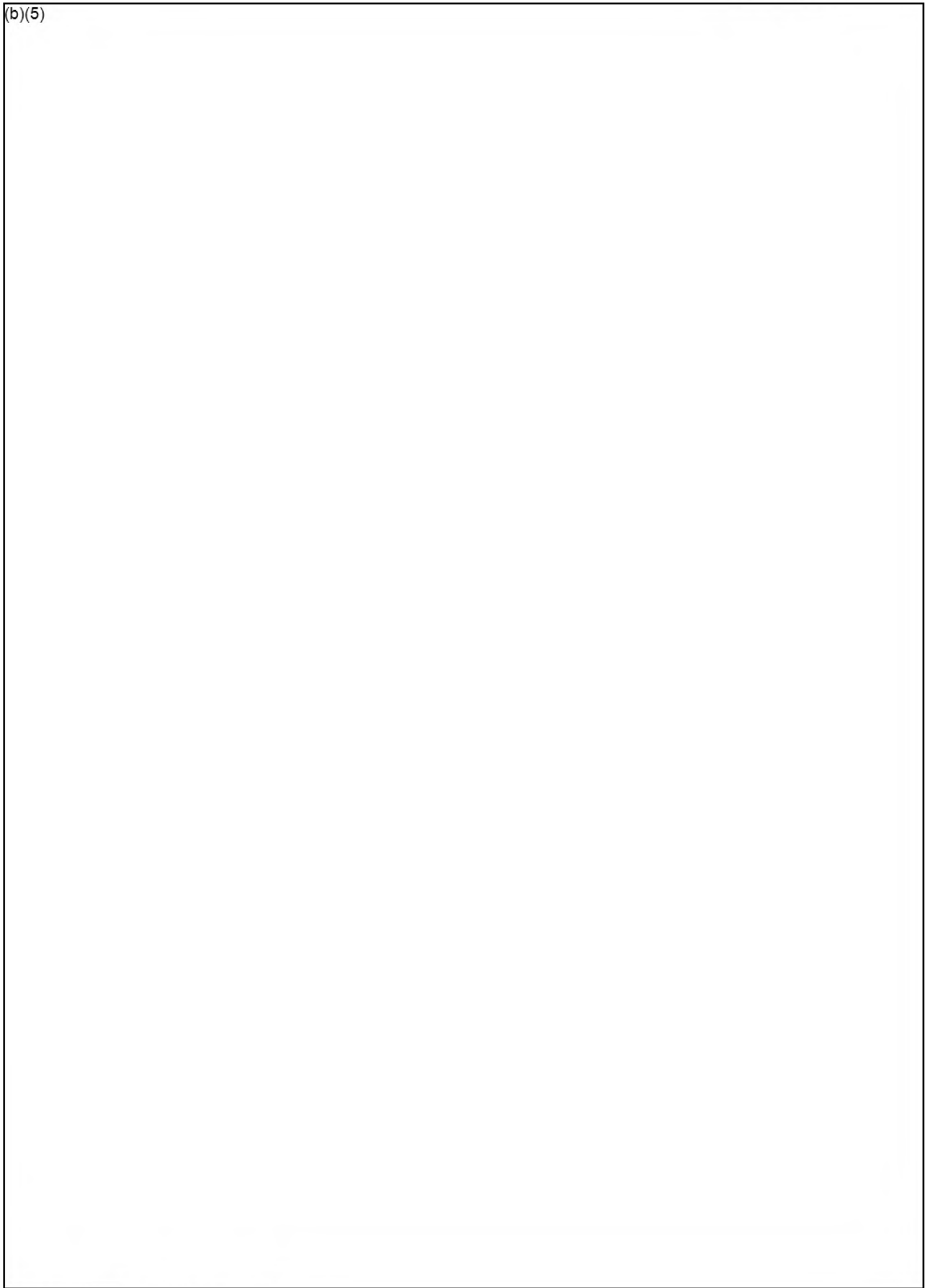
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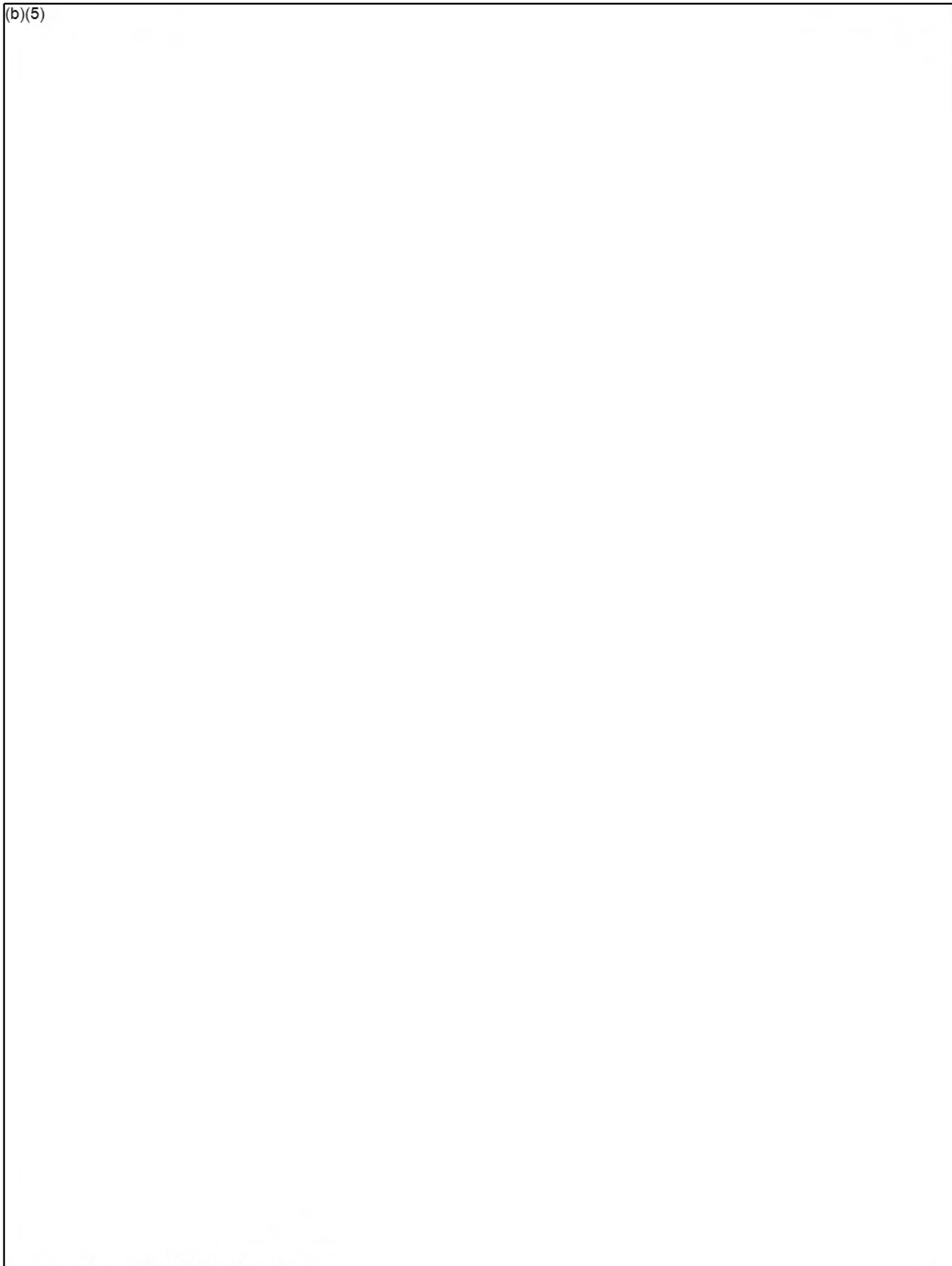
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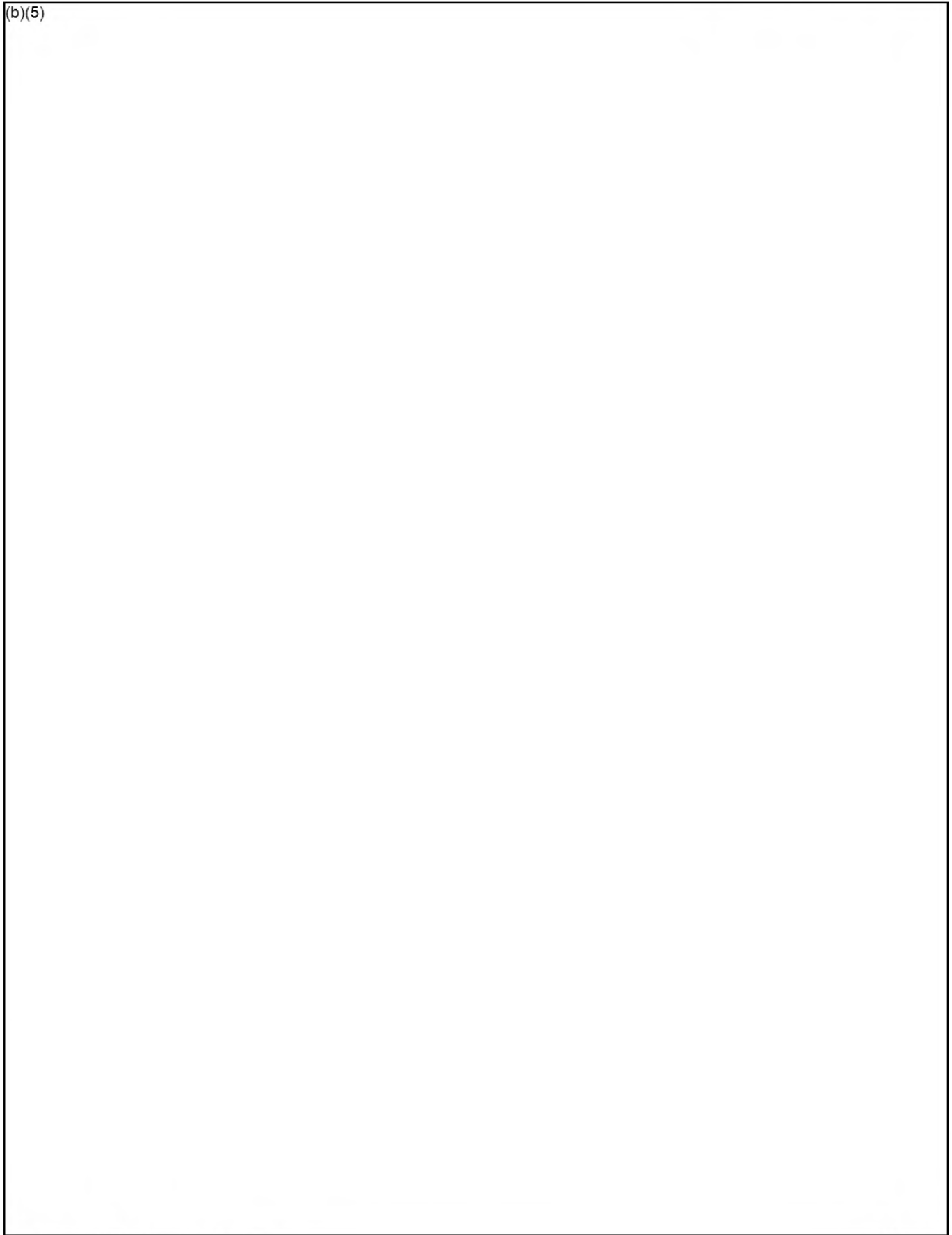


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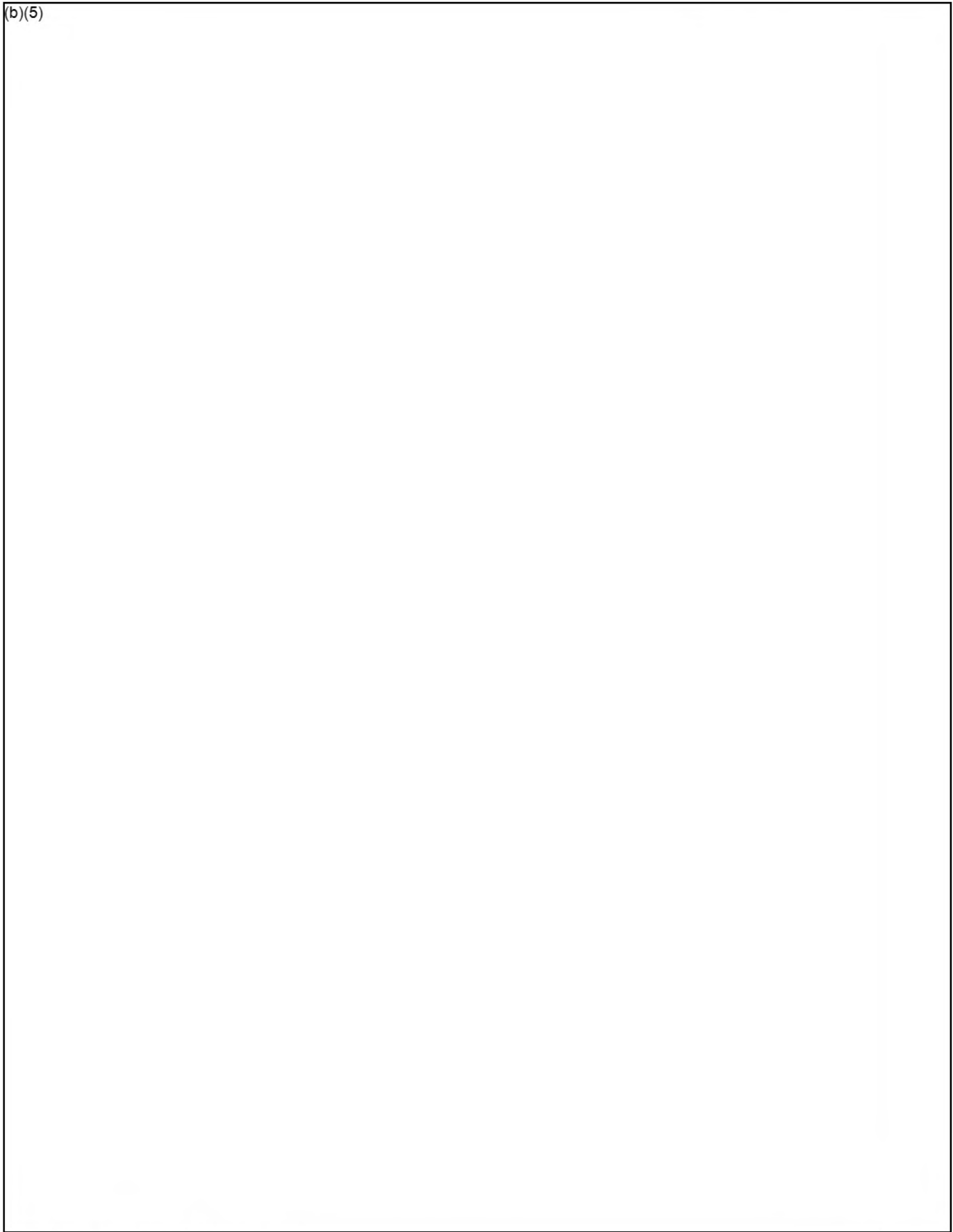
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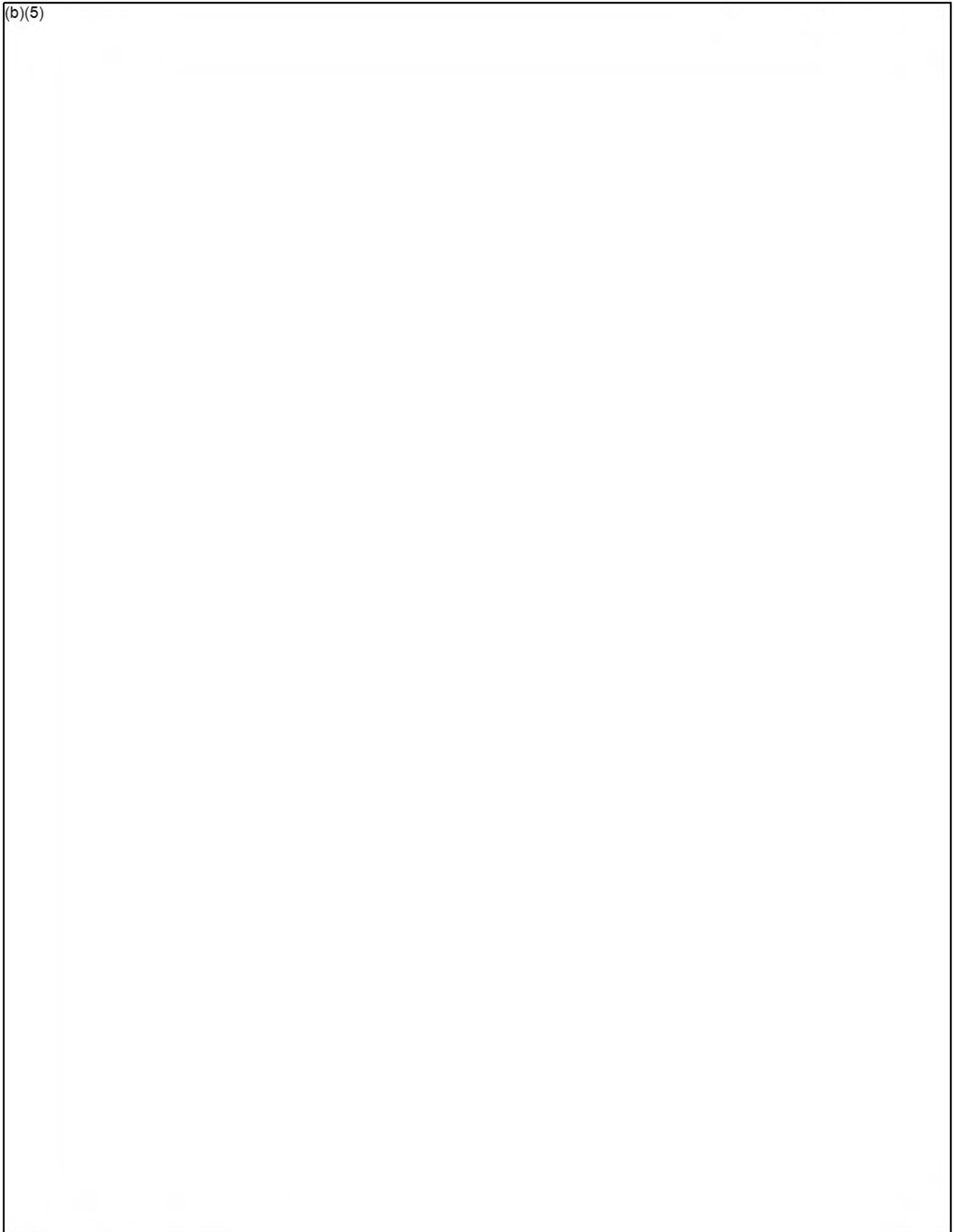
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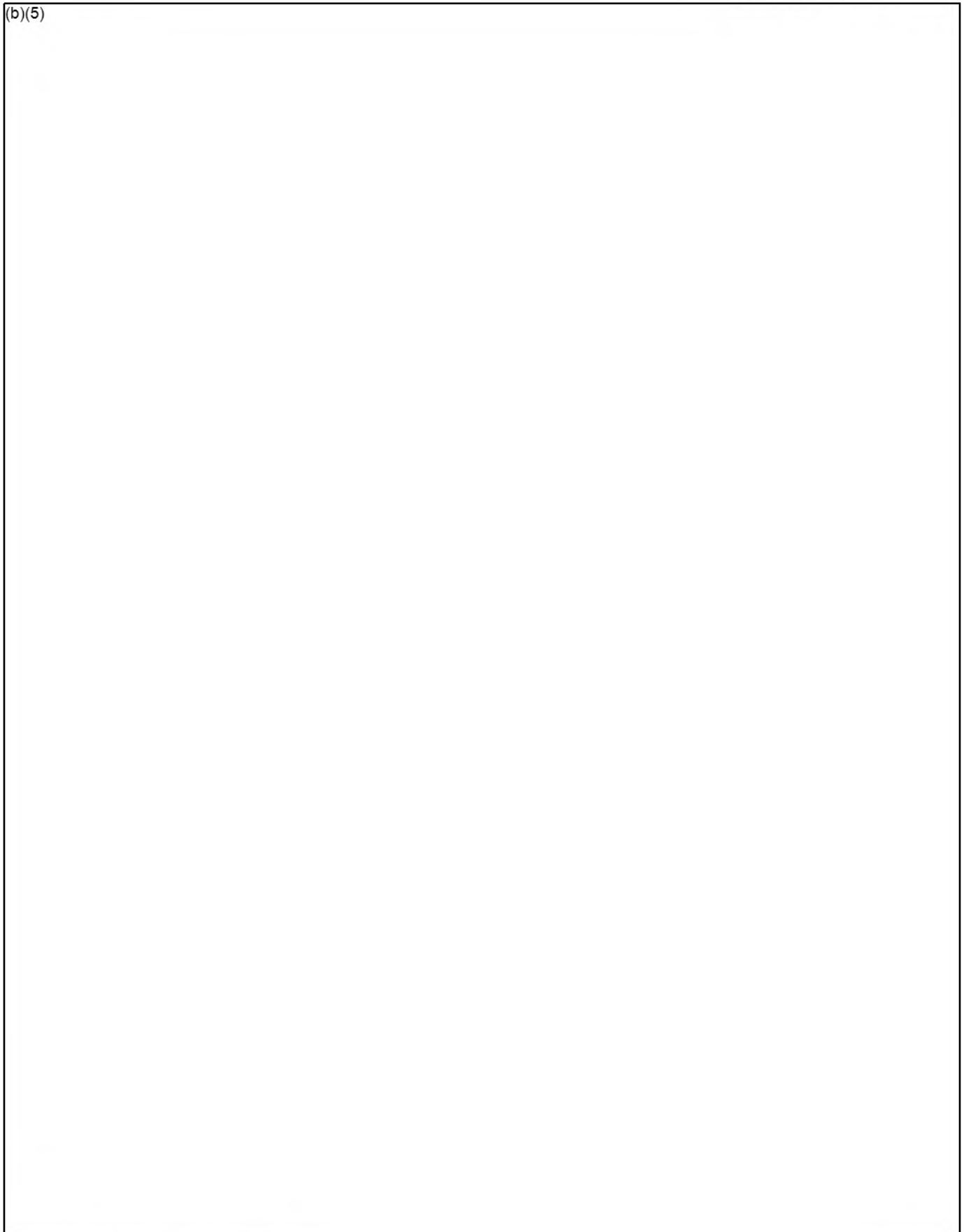
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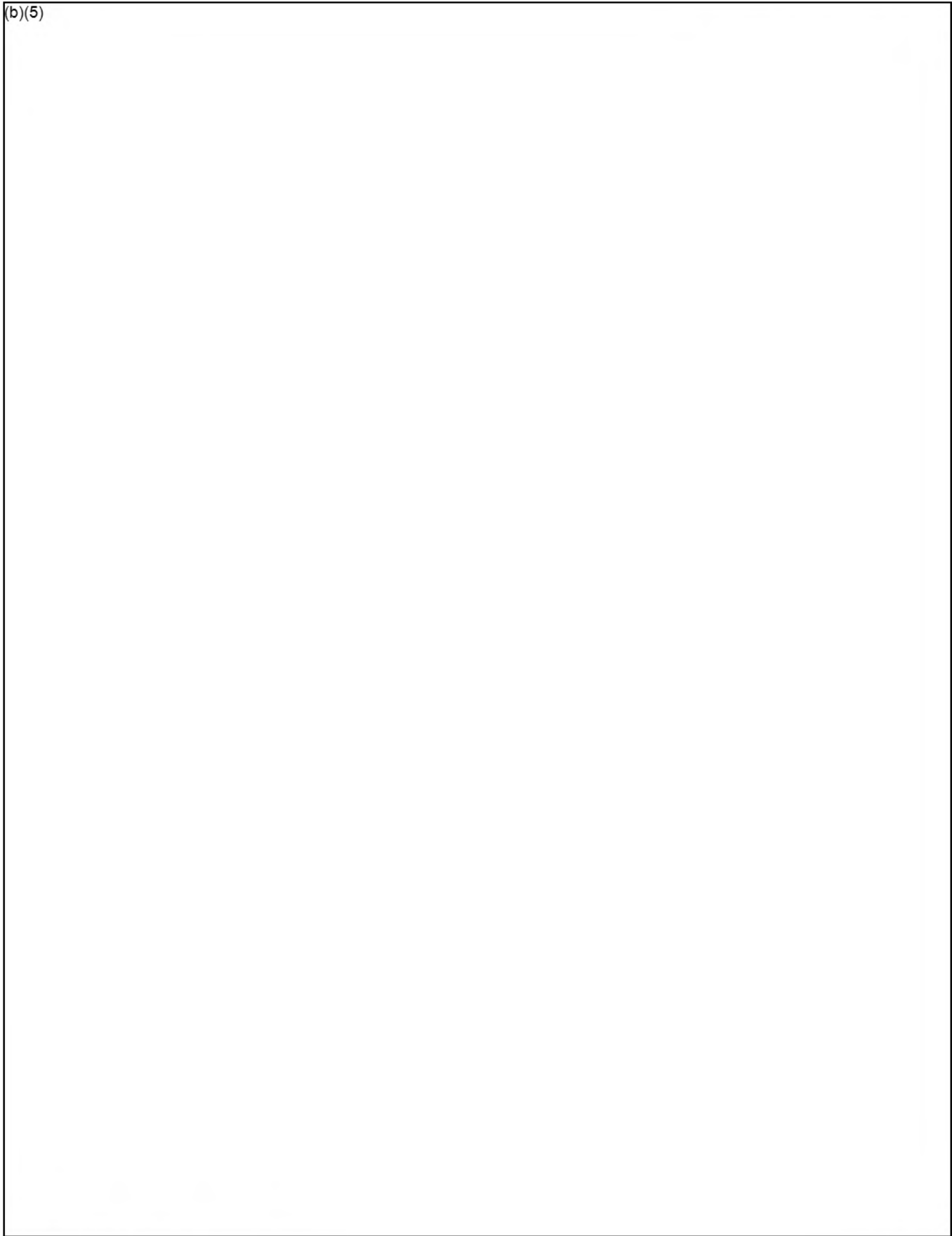


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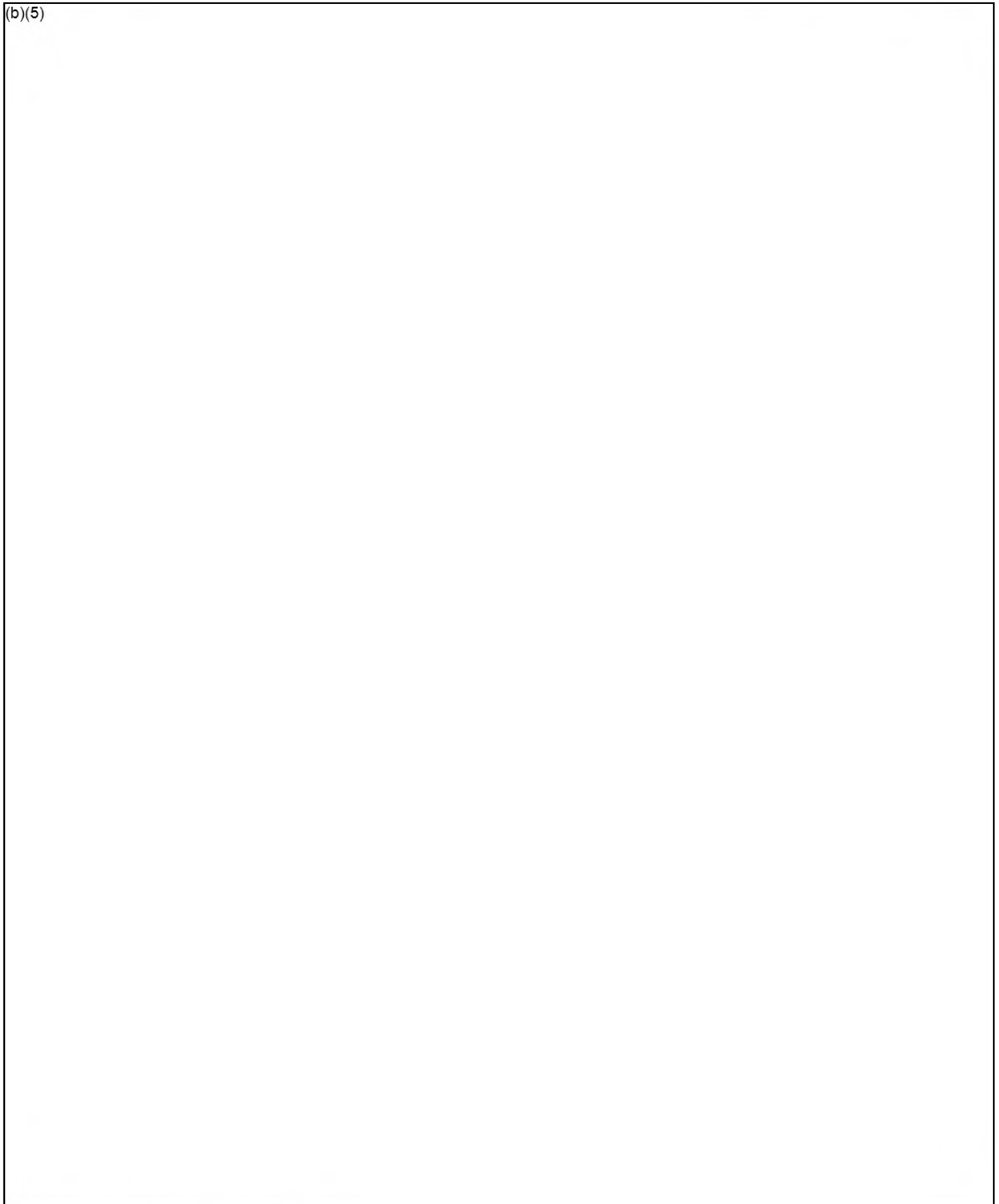


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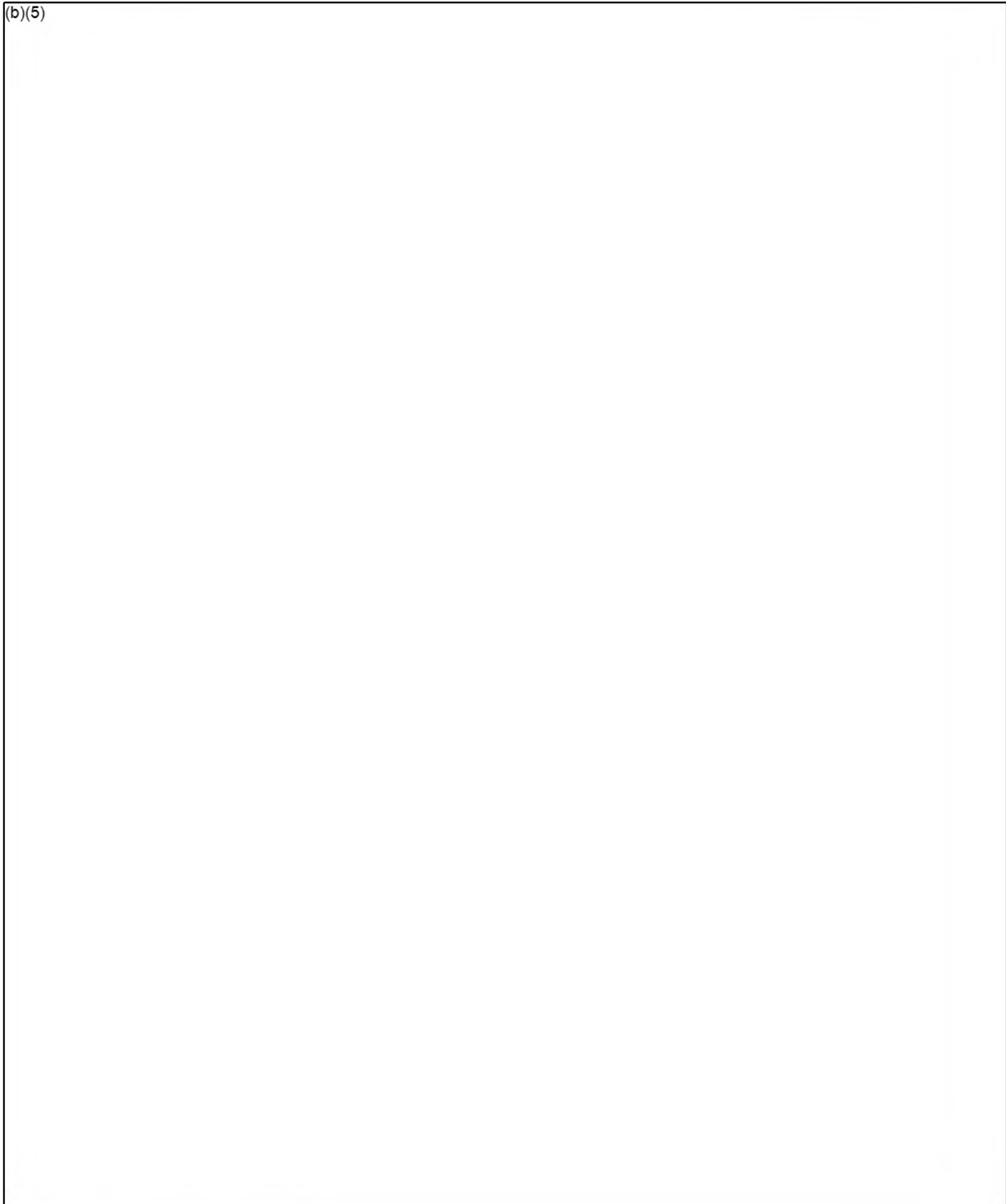
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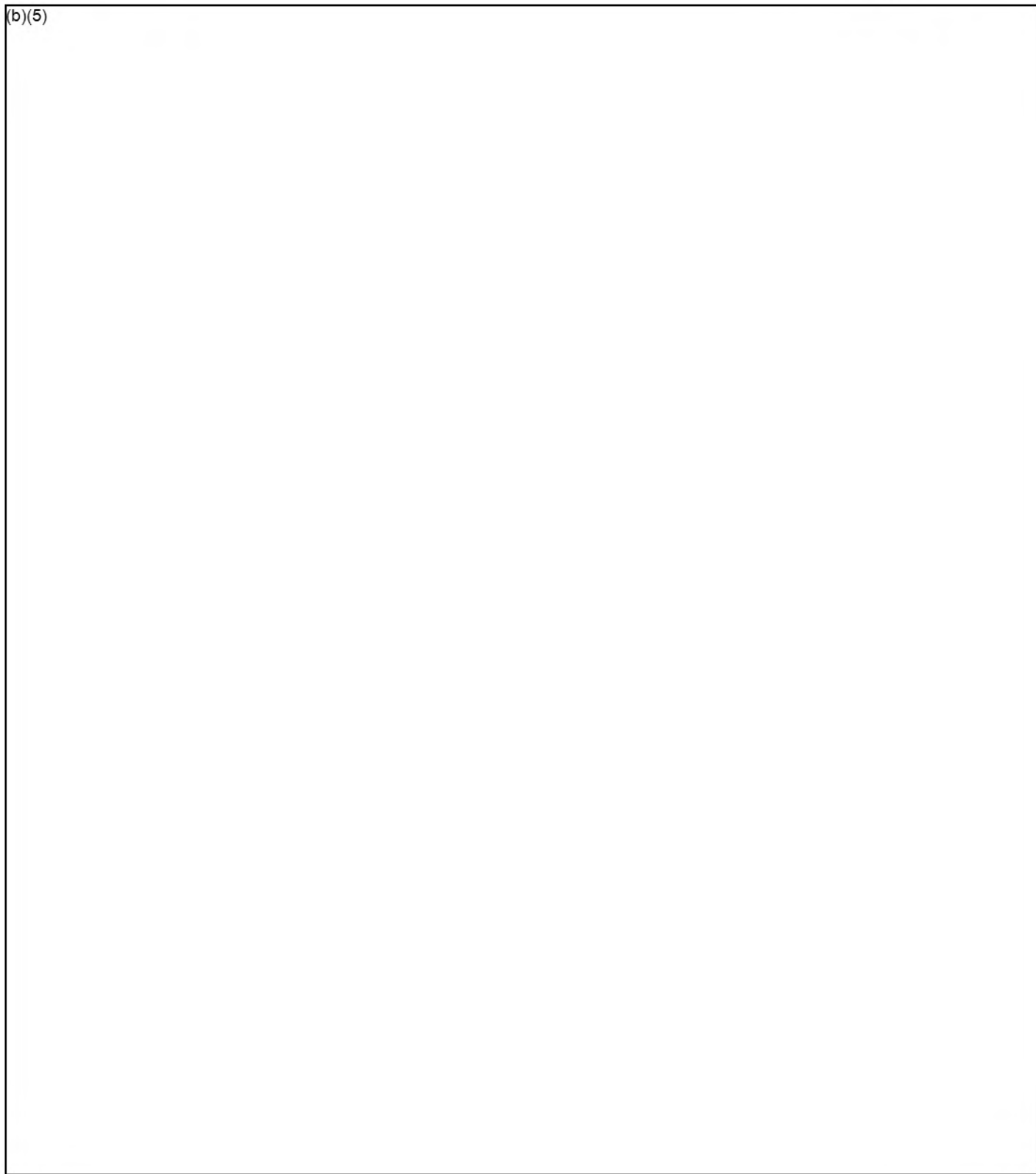
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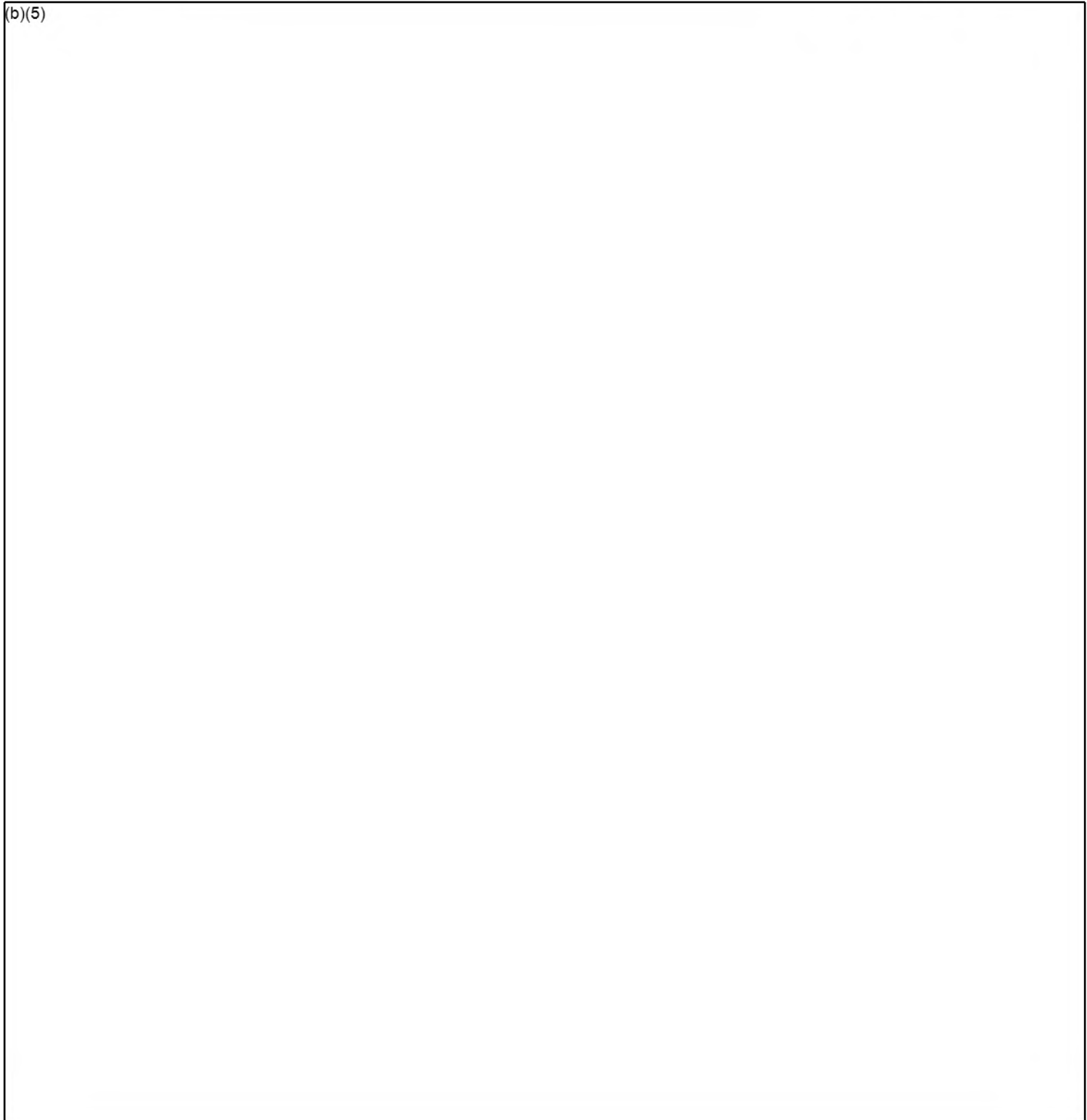
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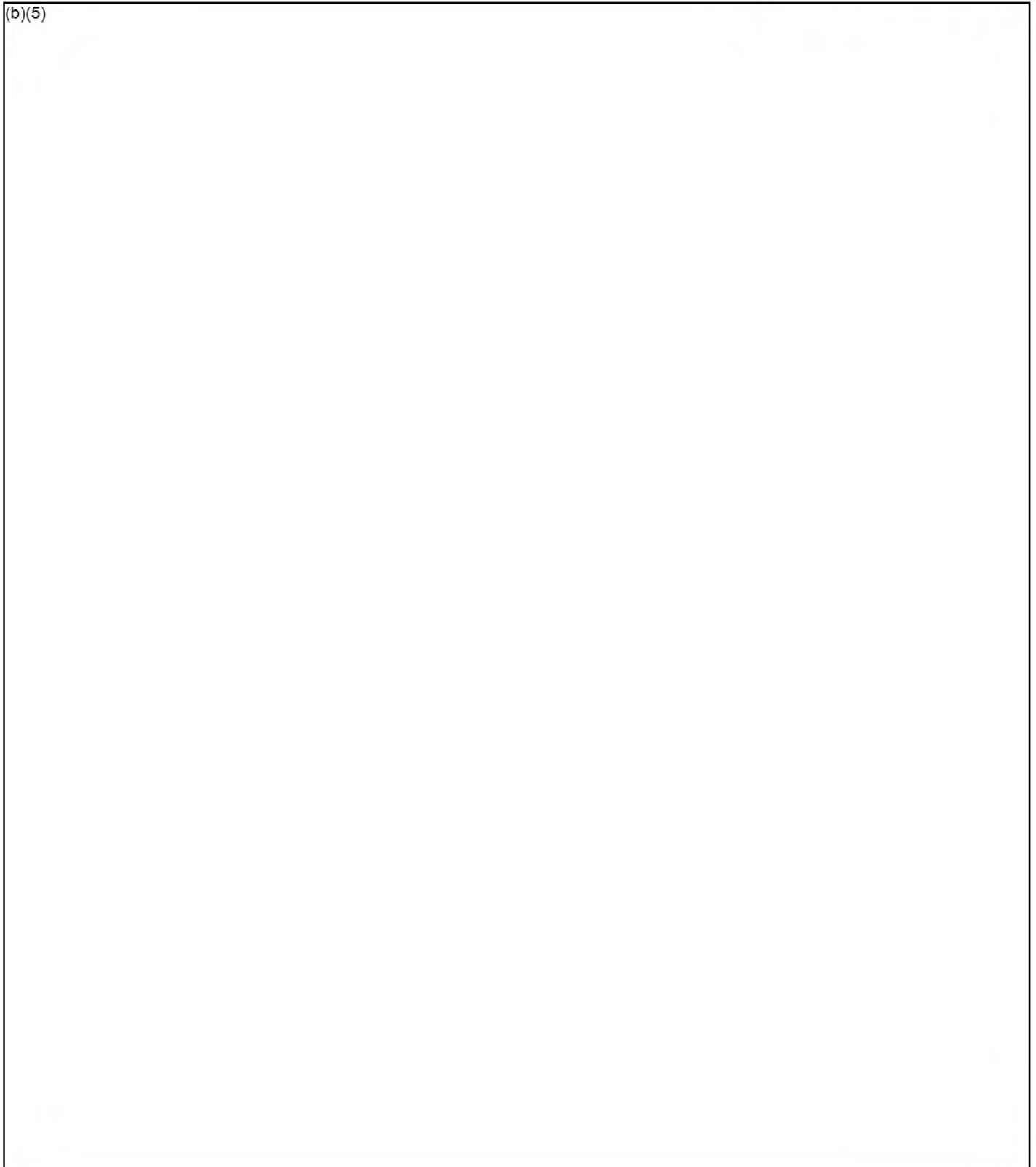
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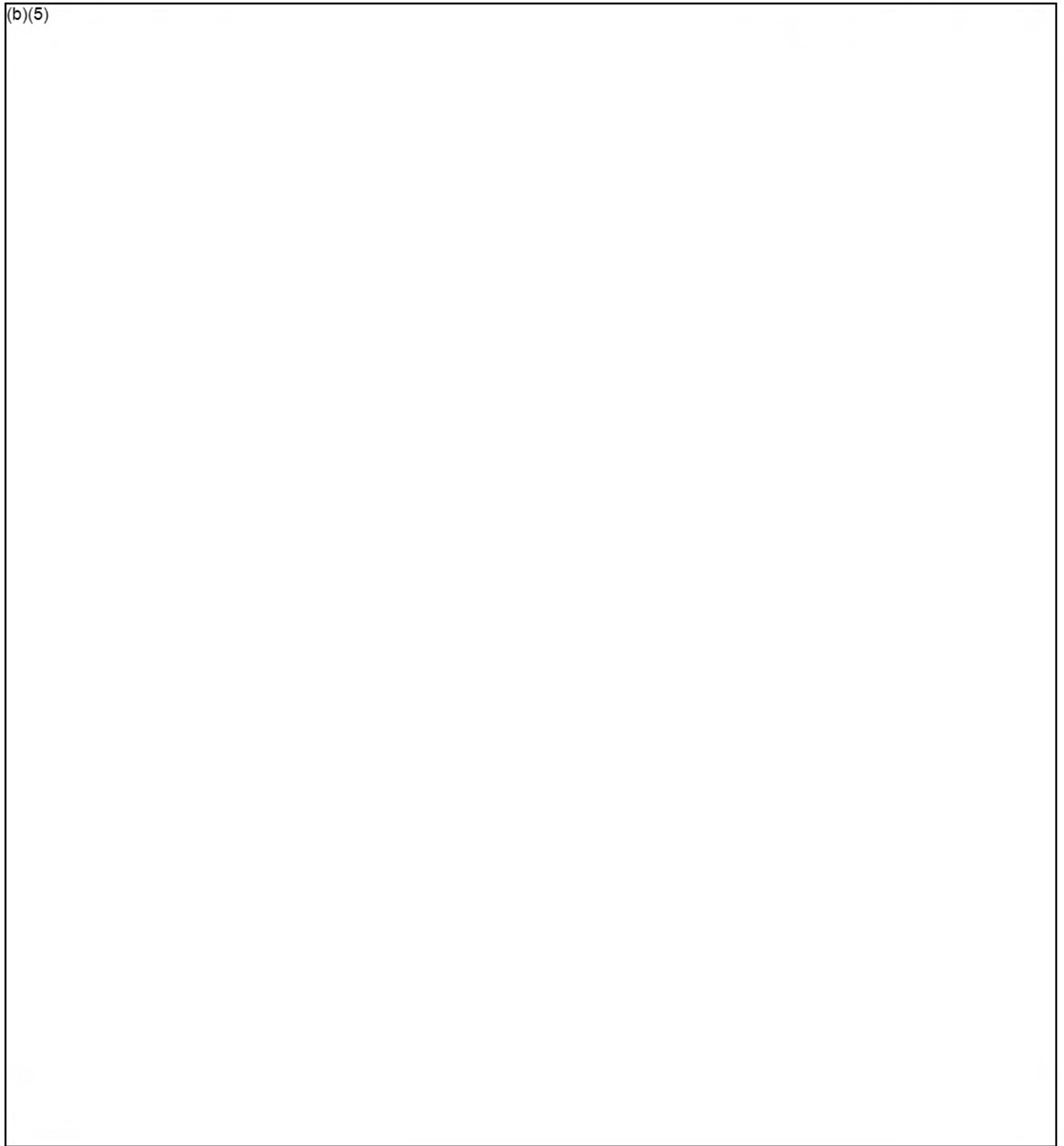
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